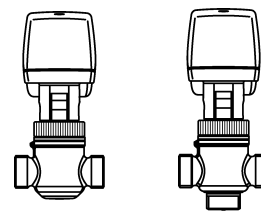


Screwed connection
PN 16
Brass

with electric actuators
MC15/24 • MC15/230



BR216MZ

BR316MZ

Features

- Suitable for the control of hot and chilled water (0...+120°C) in HEVAC systems and individual room or zone control of heating plants
- Microprocessor controlled
- Automatic self-calibration on start up

Technical data valve

Series	BR216MZ	BR316MZ
Form	Two-way	Three-way
Diameter nominal	DN 15 - DN 25	DN 15 - DN 25
Pressure rating	PN 16	PN 16
Characteristic	equal %-mod.	A→AB equal %-mod. B→AB linear
Stroke mm	6.5	6.5
Rangeability	≥ 30:1	≥ 30:1

Function: BR216MZ as two-way valve
BR316MZ as mixing valve

Connection type: Body with external thread acc. ISO 228/1
union nuts and gaskets

Leakage rate: EN 1349 – seat-leakage V L1

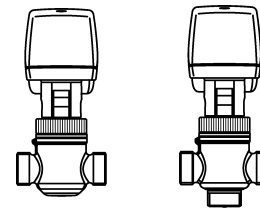
Body: Brass
Plug: Brass
Stem: CrNi-steel 1.4305
Stem sealing: O-rings EPDM

Valve variant and accessories

- Body with external thread, with brass union nuts and gaskets
- Technical silicon free version

Screw connection
PN 16
Brass

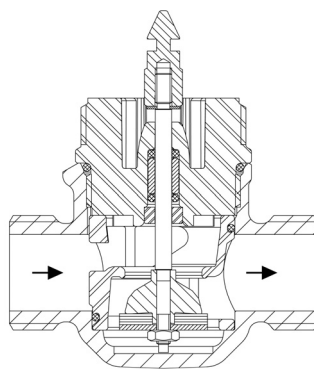
with electric actuators
MC15/24 • MC15/230



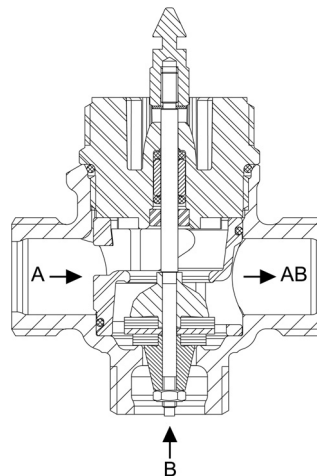
BR216MZ

BR316MZ

Drawing



BR216MZ



BR316MZ

Technical data actuator

Type		MC15/24	MC15/230
Actuating time	s/mm	20	20
Actuating thrust	kN	0.15	0.15
Stroke	mm	9	9
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ¹⁾	VDC	24 ±10%	
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	2.5	2.5
Input signal		3-point 0(2)...10 VDC	3-point

Enclosure protection: IP 40

Mains connection: 1.5 m flexible cable, 0.5mm², with wire end ferrule

Operating mode: S3 - 100 % ED

End position switch-off: load-dependent

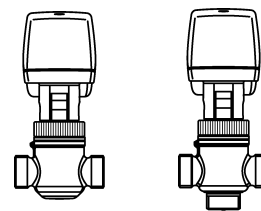
Ambient temperature: 0...+60°C

Weight: 0.18 kg

¹⁾ only rectified alternating voltage

Screwed connection
PN 16
Brass

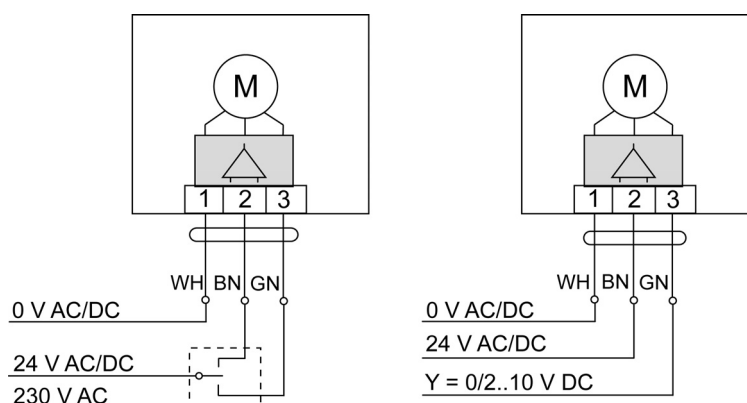
with electric actuators
MC15/24 • MC15/230



BR216MZ

BR316MZ

Wiring



Technical data valve with actuator

BR216MZ

DN		15						20	25	
kvs-value	m³/h	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	8.0
Stroke	mm	6.5								
MC15/24 MC15/230	Actuating time	s	130							
	Closing pressure	kPa	600	600	600	600	300	300	300	150

100 kPa = 1 bar = 10 mWS

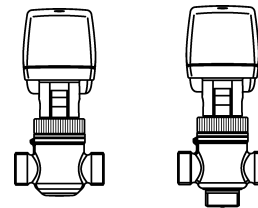
BR316MZ

DN		15						20	25	
kvs-value	m³/h	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	8.0
Stroke		mm		6.5						
MC15/24 MC15/230	Actuating time	s		130						
	Closing pressure	kPa	600	600	600	600	300	300	300	150

100 kPa = 1 bar = 10 mWS

Screwed connection
PN 16
Brass

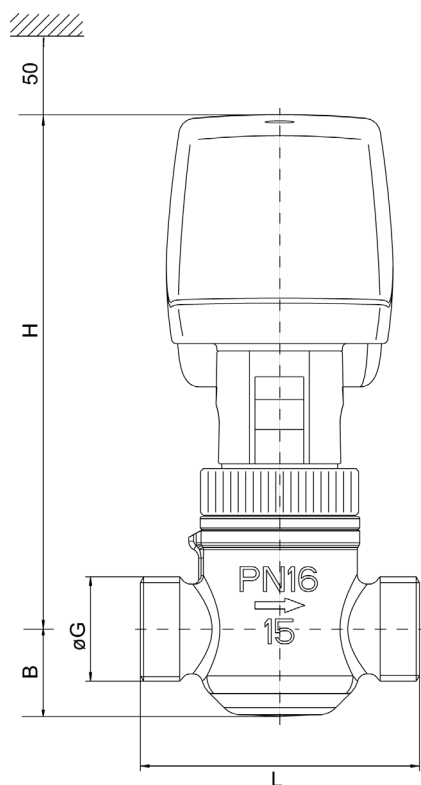
with electric actuators
MC15/24 • MC15/230



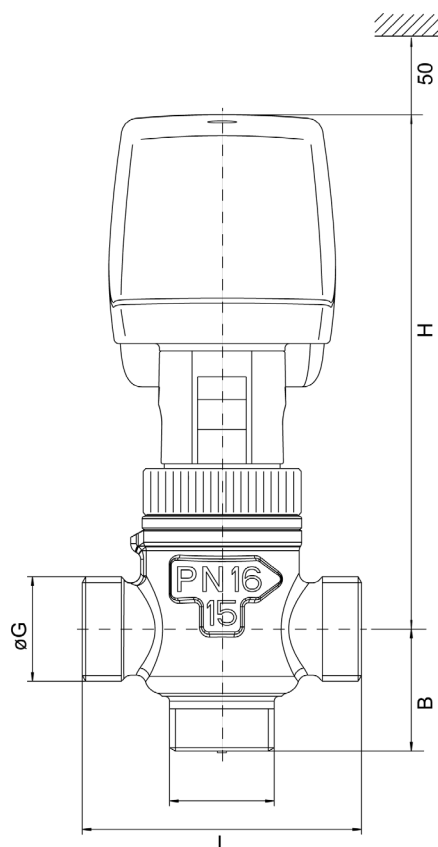
BR216MZ

BR316MZ

Drawing



BR216MZ MC15



BR316MZ MC15

Installation instruction:

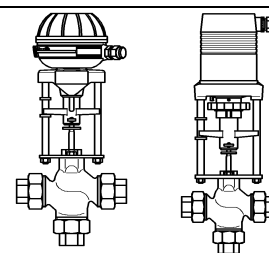
Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Dimension

DN			15	20	25
G			G ½ A	G ¾ A	G 1 ¼ A
L	mm		56	66	76
B	BR216MZ	mm	18	19	26
	BR316MZ	mm	24.5	33	38
H	mm		110	115	130
m	BR216MZ	kg	0.34	0.40	0.70
	BR316MZ	kg	0.35	0.43	0.75

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA

BR316RA

Features

- Suitable for the control of hot and chilled water (0...+150°C) in HVAC systems control of heating plants.
Above 130°C valves should only be mounted in the horizontal position.
- With stem heater suitable for water with antifreeze compounds down to -15°C
- Tight shut-off in the closed position
- Microprocessor controlled
- Automatic self-calibration on start up

Technical data valve

Series	BR216RA		BR316RA	
Form	Two-way		Three-way	
Diameter nominal	DN 15 + DN 20	DN 25 – DN 50	DN 15 + DN 20	DN 25 – DN 50
Pressure rating	PN 16		PN 16	
Characteristic	A→AB equal %		A→AB equal % B→AB linear	
Stroke mm	12	14	12	14
Rangeability	DN 15: 50:1 DN 20 – 50: 100:1		DN 15: 50:1 DN 20 – 50: 100:1	

Function: BR216RA as two-way valve
BR316RA as mixing or on-off valve

Connection type: Body with external thread acc. ISO 228/1 incl. connection parts of malleable cast iron with cylindrical internal thread acc. ISO 7/1, union nuts and gaskets

Leakage rate: EN 1349 – seat-leakage VI G 1 (tight sealing)

Body: Bronze CC491K
Plug: Brass CW614N
Stem: CrMo-steel 1.4122
Stem sealing: O-rings EPDM

Valve variant and accessories

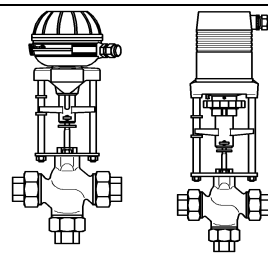
- Internal thread connection parts of bronze
Union nut of malleable cast iron
- Plug made of CrNi-steel 1.4305
- With stem heater suitable for water with antifreeze compounds down to -15°C
24 VAC, 50/60 Hz
Power consumption: $P_{max.} \approx 400 \text{ VA}$
 $P_N \approx 45 \text{ VA}$
- Usable for media based on mineral oil basis (stem sealing made of FKM)
- Technical silicon free version

Control valves with electric actuators up to 150°C

PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

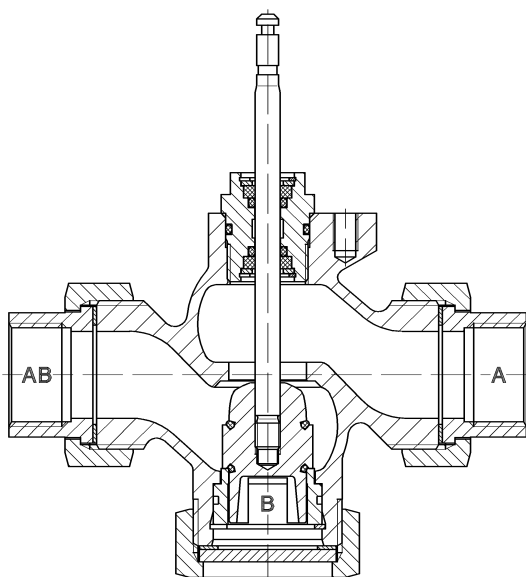
with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



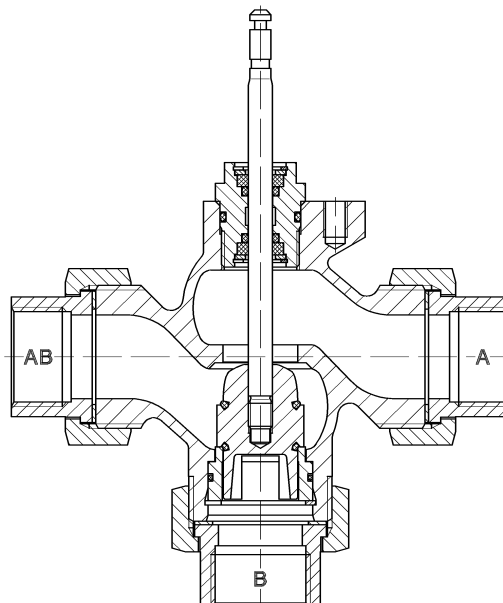
BR216RA

BR316RA

Drawing



BR216RA



BR316RA

Technical data actuator MC55

Type		MC55/24	MC55/230	MC55Y
Actuating time ¹⁾	s/mm	9 · 5*	9 · 5*	9 · 5*
Actuating thrust	kN	0.6	0.6	0.6
Stroke	mm	max. 14	max. 14	max. 14
Power supply	VAC	24 ±10%	230 +6% -10%	24 ±10%
Power supply ²⁾	VDC	24 ±10%		24 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%	50/60 ±5%
Power consumption	VA	3.5	7	3.5
Input signal ³⁾		3-point	3-point	0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis	V	0.3	0.3	0.3

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

2.2.1

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2/8

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Germany



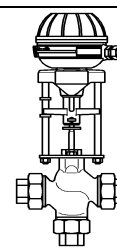
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Control valves with electric actuators up to 150°C

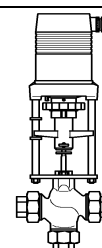
PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA



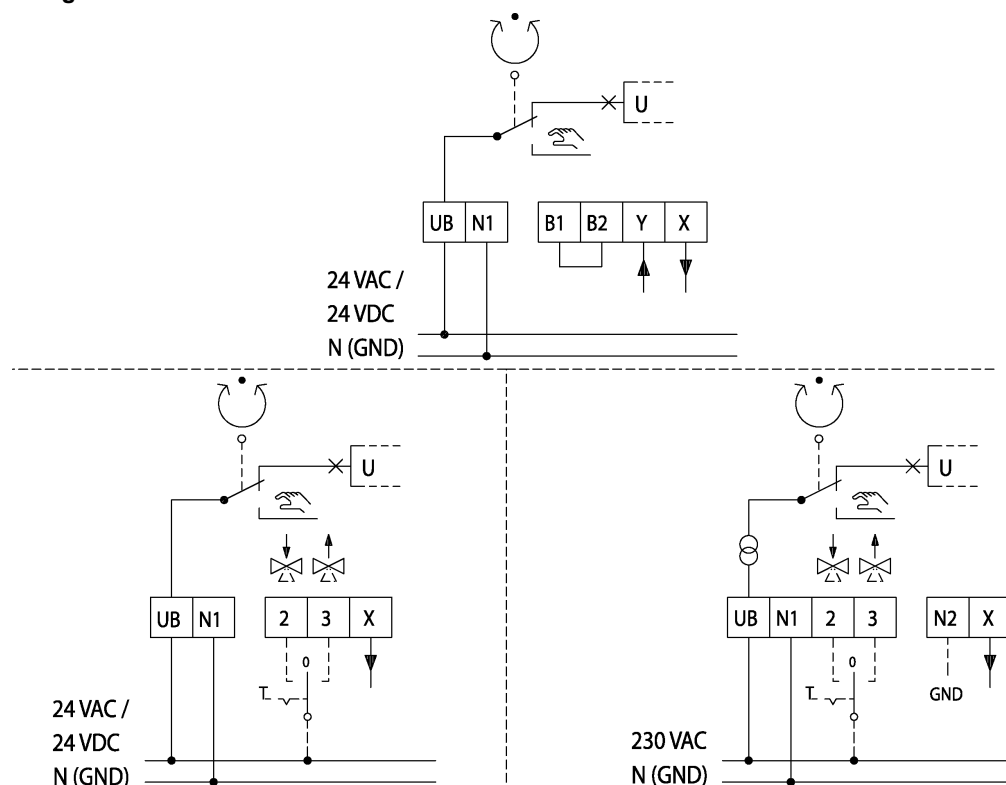
BR316RA

Enclosure protection:	IP 54 in automatic operation IP 30 in manual operation	
Resolution:	electric	0.04 VDC
	mechanical	0.06 mm
Mains connection:	Actuator with terminal	
Operating mode:	S3-50% ED c/h 1200	EN 60034-1
End position switch-off:	load-dependent	
Ambient temperature:	0...+60°C	
Weight:	1.5 kg	

Actuator variant and accessories

- Voltage: 115 VAC
- Adapter with coupling for external products

Circuit diagram



B1/B2 Connection of a binary signal (e.g. frost safety)

2.2.1	Phone	+49 (0) 52 07 / 89 03 - 0
3/8	Fax	+49 (0) 52 07 / 89 03 - 80
	e-Mail	b-a@hora.de
	Internet	www.hora-ba.com

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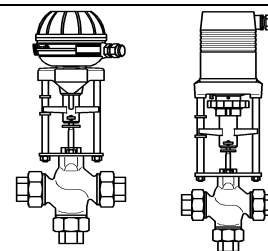
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Control valves with electric actuators up to 150°C

PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA

BR316RA

Technical data actuator MC100 / MC161

Type		MC100/24	MC100/230
Actuating time ¹⁾	s/mm	12 · 9* · 4 · 1.9	12 · 9* · 4 · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

Type		MC161/24	MC161/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Actuating thrust	kN	1.6	1.6
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution:

MC	electric	0.04 VDC
MC100	mechanical	0.095 mm
MC161	mechanical	0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

2.2.1

4/8

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Germany



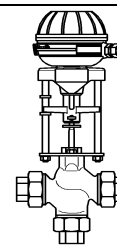
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Control valves with electric actuators up to 150°C

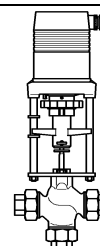
PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA



BR316RA

End position switch-off: load-dependent

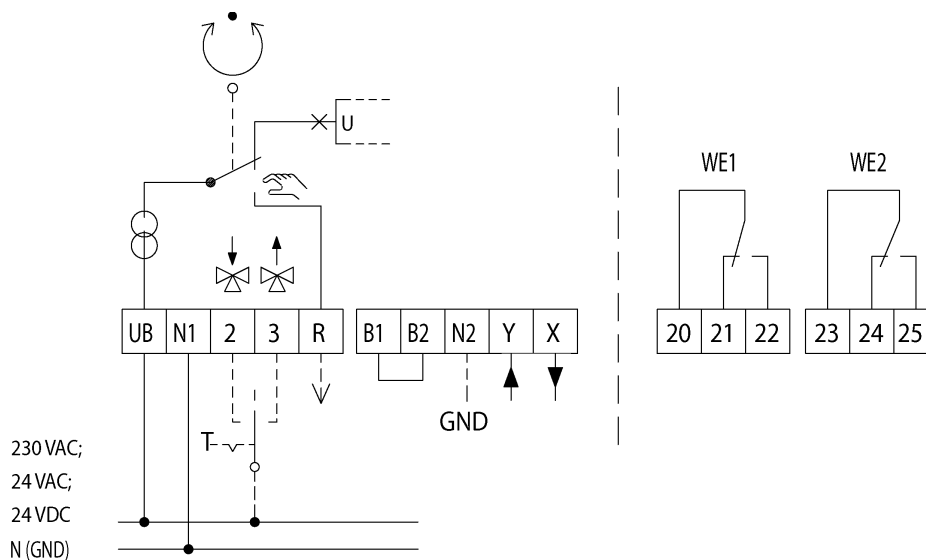
Ambient temperature: 0...+60°C

Weight: MC100 2.5 kg
MC161 3.2 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Circuit diagram



B1/B2 Connection of a binary signal (e.g. frost safety)

¹⁾ Position switch unit and output signal 0(4)...20 mA not in combination

2.2.1
5/8

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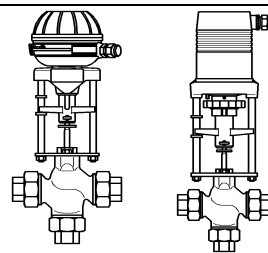
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Control valves with electric actuators up to 150°C

PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA

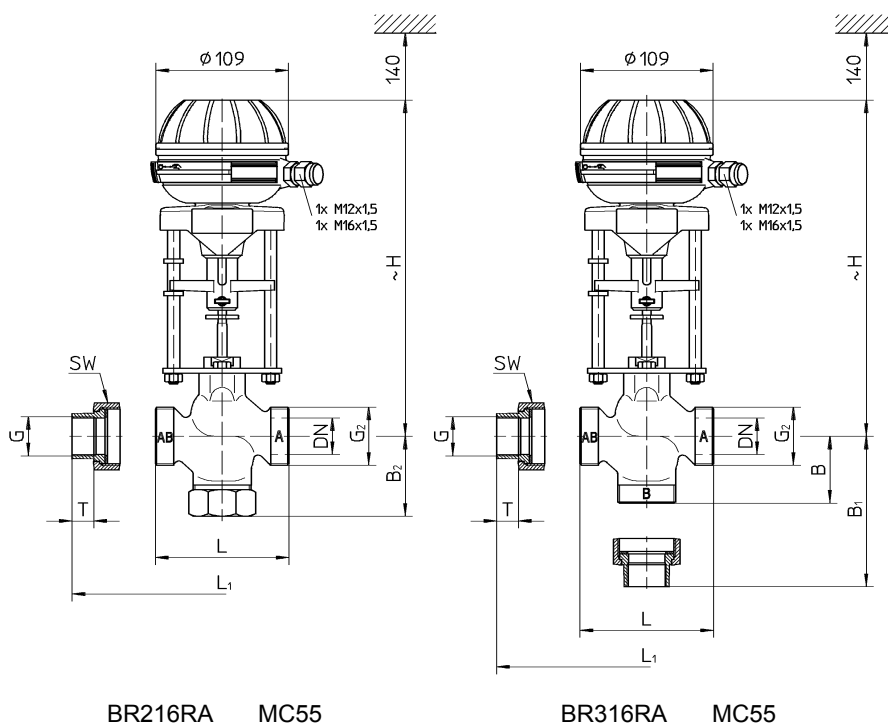
BR316RA

Technical data valve with actuator

DN		15		20	25	32	40	50				
kvs-value		4 2.5	1.6 1.25 0.63	6.3 5	10 8	16 12.5	25 20	40 31.5				
Stroke		mm			12				14			
MC55/24 MC55/230 MC55Y	Actuating time ¹⁾	s	105			125						
			60*			70*						
	Closing pressure	kPa	1500	1500	1250	750	450	250	150			
MC100/24 MC100/230	Actuating time ¹⁾	s	145			170						
			105*			125*						
			45			55						
			20			30						
	Closing pressure	kPa	1600	1600	1600	1500	900	550	350			
MC161/24 MC161/230	Actuating time ¹⁾	s				95						
						55*						
	Closing pressure	kPa				1500		950	600			

100 kPa = 1 bar = 10 mWS

Drawing



BR216RA MC55

BR316RA MC55

¹⁾ Actuating time freely adjustable, presetting is marked with *

2.2.1
6/8

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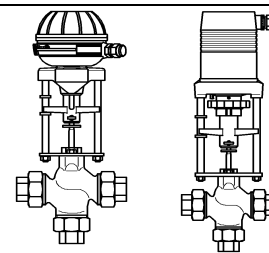
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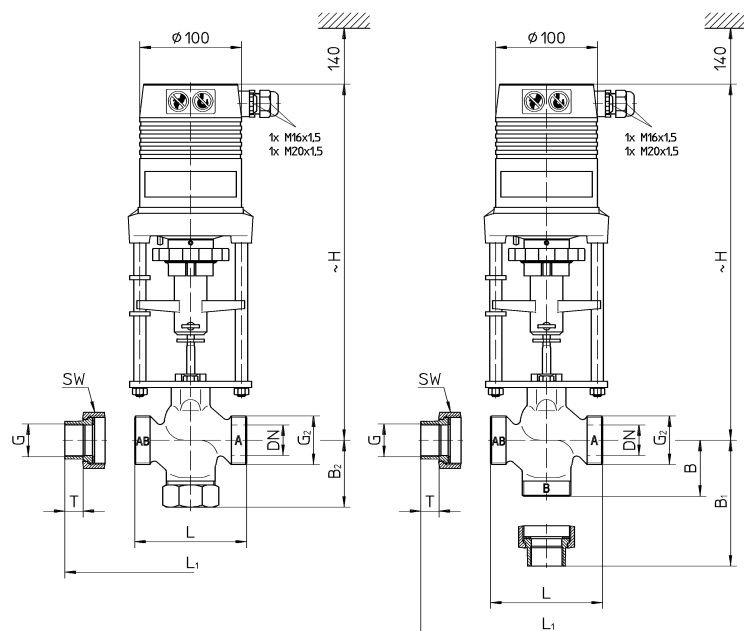
Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



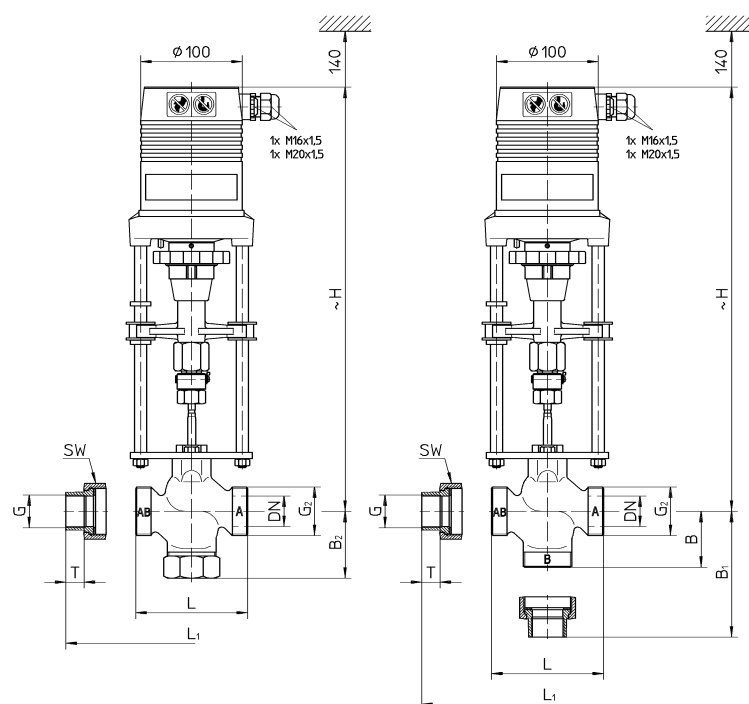
BR216RA

BR316RA



BR216RA MC100

BR316RA MC100



BR216RA MC161

BR316RA MC161

Installation instruction:

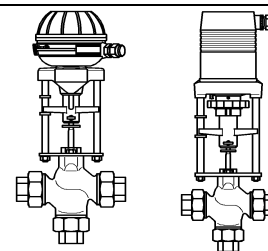
Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Control valves with electric actuators up to 150°C

PN 16 **2.2.1**

Screwed connection
PN 16
Bronze

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA

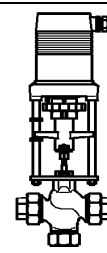
BR316RA

Dimension

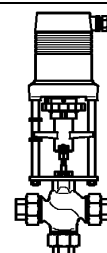
DN				15	20	25	32	40	50
G				Rp ½	Rp ¾	Rp 1	Rp 1 ¼	Rp 1 ½	Rp 2
L mm				62	75	80	120	130	150
L ₁ mm				114	127	138	184	198	222
B mm				40	41	45	55	60	65
B ₁ mm				66	67	74	89	94	101
B ₂ mm				48	53	57	68	73	78
G ₂				G 1 A	G 1 ¼ A	G 1 ½ A	G 2 A	G 2 ¼ A	G 2 ¾ A
SW mm				37	48	53	68	73	88
T mm				13	15	17	19	19	24
H	MC55	24 VAC/230 VAC	mm	265	268	271	280	283	283
	MC100	24 VAC	mm	338	341	344	353	358	363
		230 VAC	mm	363	366	369	378	383	388
	MC161	24 VAC	mm				420	423	423
		230 VAC	mm				445	448	448
m	MC55		kg	2.4	2.9	3.2	4.9	5.5	7.1
	MC100		kg	3.4	3.9	4.2	5.9	6.5	8.1
	MC161		kg				6.6	7.2	8.8

Screwed connection
PN 16
Bronze

with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA-TW



BR316RA-TW

Features

- Suitable for the control of hot and chilled water (0...+90°C) in drinking water systems
- Valves with DVGW test mark reg. no. DW-6340BP0198 acc. latest German Drinking Water Ordinance (TrinkwV 2001)
- Tight shut-off in the closed position
- Microprocessor controlled
- Automatic self-calibration on start up

Technical data valve

Series	BR216RA-TW		BR316RA-TW	
Form	Two-way		Three-way	
Diameter nominal	DN 15 + DN 20	DN 25 – DN 50	DN 15 + DN 20	DN 25 – DN 50
Pressure rating	PN 16		PN 16	
Characteristic	A→AB equal %		A→AB equal % B→AB linear	
Stroke mm	12	14	12	14
Rangeability	DN 15: 50:1 DN 20 – 50: 100:1		DN 15: 50:1 DN 20 – 50: 100:1	

Function: BR216RA-TW as two-way valve
BR316RA-TW as mixing or on-off valve

Connection type: Body with external thread acc. ISO 228/1 incl. connection parts of bronze with cylindrical internal thread acc. ISO 7/1, union nuts and gaskets

Leakage rate: EN 1349 – seat-leakage VI G 1 (tight sealing)

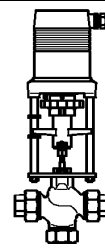
Body:	Bronze	CC491K
Plug:	CrNi-steel	1.4305
Stem:	CrNi-steel	1.4571
Stem sealing:	O-rings	EPDM
Internal thread connection parts:	Bronze	CC491K
Union nut:	Malleable cast iron	GTW

Valve variant

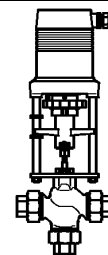
- Technical silicon free version

Screwed connection
PN 16
Bronze

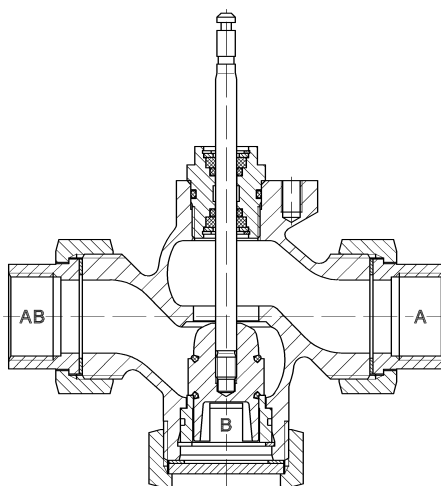
with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230



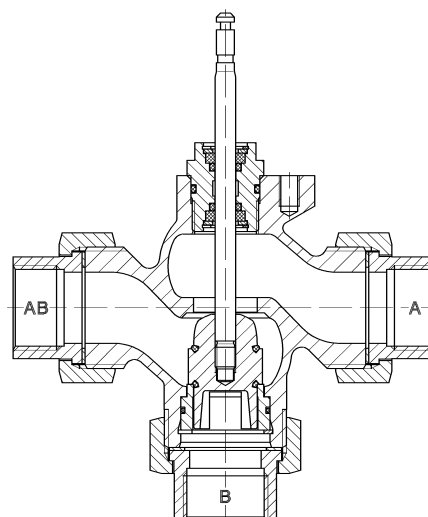
BR216RA-TW



BR316RA-TW

Drawing

BR216RA-TW



BR316RA-TW

Technical data actuator MC100 / MC160

Type		MC100/24	MC100/230
Actuating time ¹⁾	s/mm	12 · 9* · 4 · 1.9	12 · 9* · 4 · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

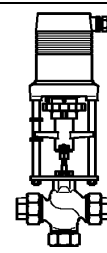
²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

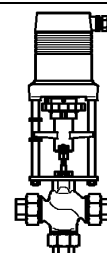
⁴⁾ Freely adjustable

Screwed connection
PN 16
Bronze

with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA-TW



BR316RA-TW

Type		MC161/24	MC161/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Actuating thrust	kN	1.6	1.6
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution:

MC	electric	0.04 VDC
MC100	mechanical	0.095 mm
MC161	mechanical	0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight:

MC100	2.5 kg
MC161	3.2 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ⁵⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ⁵⁾
- Adapter with coupling for external products

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

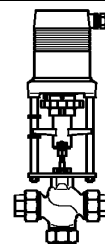
³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

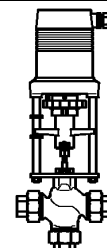
⁵⁾ Position switch unit and output signal 0(4)...20 mA not in combination

Screwed connection
PN 16
Bronze

with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230

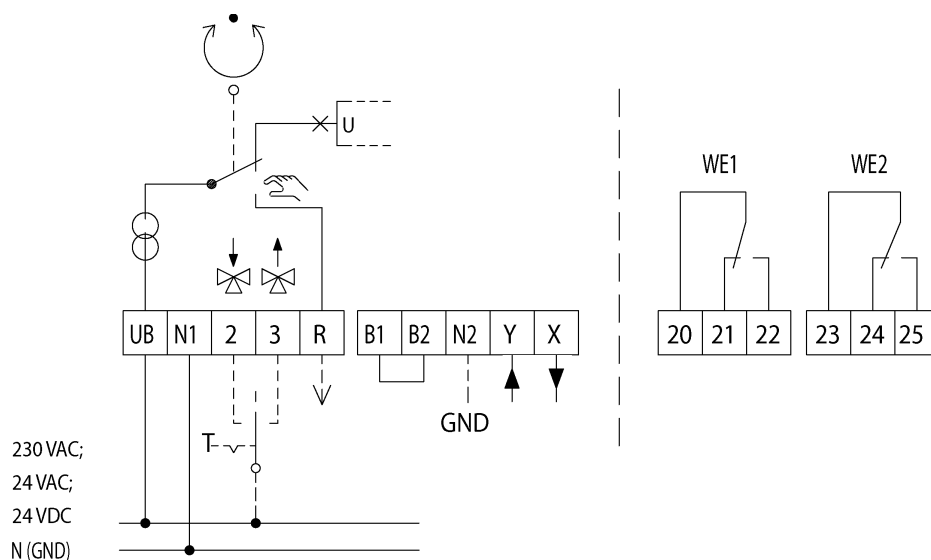


BR216RA-TW



BR316RA-TW

Circuit diagram



B1/B2 Connection of a binary signal (e.g. frost safety)

Technical data valve with actuator

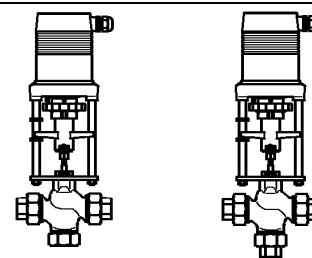
DN		15		20	25	32	40	50				
kvs-value	m³/h	4 2.5	1.6 1.25 0.63	6.3 5	10 8	16 12.5	25 20	40 31.5				
Stroke		mm			12				14			
MC100/24 MC100/230	Actuating time ¹⁾	s	145			170						
			105			125						
			45			55						
			20*			30*						
	Closing pressure	kPa	1600	1600	1600	1500	900	550	350			
MC161/24 MC161/230	Actuating time ¹⁾	s				95						
						55*						
	Closing pressure	kPa				1500		950	600			

100 kPa = 1 bar = 10 mWS

¹⁾ Actuating time freely adjustable, presetting is marked with *

Screwed connection
PN 16
Bronze

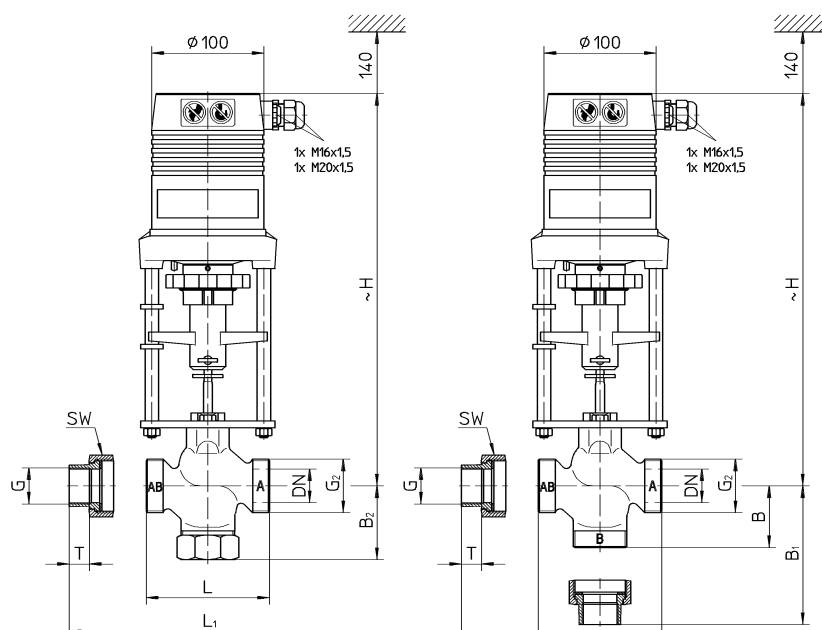
with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA-TW

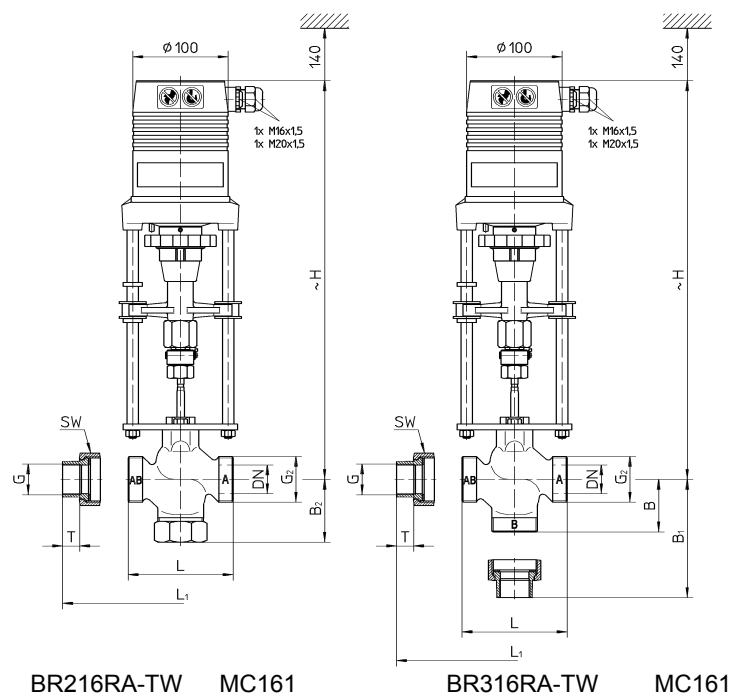
BR316RA-TW

Drawing



BR216RA-TW MC100

BR316RA-TW MC100



BR216RA-TW MC161

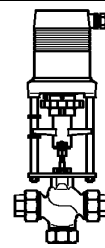
BR316RA-TW MC161

Installation instruction:

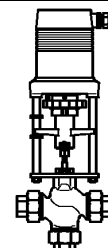
Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Screwed connection
PN 16
Bronze

with electric actuators
MC100/24 • MC100/230
MC161/24 • MC161/230



BR216RA-TW



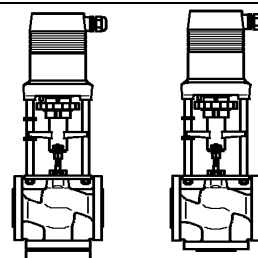
BR316RA-TW

Dimension

DN			15	20	25	32	40	50
G			Rp ½	Rp ¾	Rp 1	Rp 1 ¼	Rp 1 ½	Rp 2
L	mm		62	75	80	120	130	150
L ₁	mm		114	127	138	184	198	222
B	mm		40	41	45	55	60	65
B ₁	mm		66	67	74	89	94	101
B ₂	mm		48	53	57	68	73	78
G ₂			G 1 A	G 1 ¼ A	G 1 ½ A	G 2 A	G 2 ¼ A	G 2 ¾ A
SW	mm		37	48	53	68	73	88
T	mm		13	15	17	19	19	24
H	MC100	24 VAC	mm	338	341	344	353	358
		230 VAC	mm	363	366	369	378	383
	MC161	24 VAC	mm				420	423
		230 VAC	mm				445	448
m	MC100		kg	3.4	3.9	4.2	5.9	6.5
	MC161		kg				6.6	7.2

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



BR206GF
BR216GF

BR306GF
BR316GF

Features

- Suitable for the control of hot and chilled water (0...+150°C) in HEVAC systems control of heating plants.
Above 130°C valves should only be mounted in the horizontal position.
- With stem heater suitable for water with antifreeze compounds down to -10°C
- Tight shut-off in the closed position
- Microprocessor controlled
- Automatic self-calibration on start up

Technical data valve

Series	BR206GF	BR216GF	BR306GF	BR316GF
Form	Two-way		Three-way	
Diameter nominal	DN 15 – DN 100	DN 15 – DN 150	DN 15 – DN 100	DN 15 – DN 150
Pressure rating	PN 6	PN 16	PN 6	PN 16
Characteristic	A→AB equal %		A→AB B→AB	equal % linear
Stroke	mm14 (DN 15 – DN 50) 20 (DN 65) 30 (DN 65 – DN 100) 50 (DN 125 – DN 150)			
Rangeability	DN 15: 50:1 DN 20 – 150: 100:1			

Function: BR206/216GF as two-way valve
BR306/316GF as mixing or on-off valve

Connection type: Flanges acc. EN 1092-2 type 21

Face to face dimension: Acc. EN 558-1 basic series 1

Leakage rate: EN 1349 – seat-leakage VI G 1 (tight sealing)

Body: Cast iron EN-JL1040
Plug: Brass CW614N
Stem: CrMo-steel 1.4122
Stem sealing: O-rings EPDM

Valve variant and accessories

- Plug made of CrNi-steel 1.4305
- With stem heater suitable for water with antifreeze compounds down to -10°C
24 VAC, 50/60 Hz
DN 15 – DN 100 and DN 125 – DN 150 Power consumption: $P_{max.} \approx 400 \text{ VA}$
 $P_N \approx 45 \text{ VA}$
- Epoxy resin special varnish as a corrosion resistant in case of condensed water, max. 80°C
- Usable for media based on mineral oil basis (stem sealing made of FKM)
- Technical silicon free version

2.2.3 Phone +49 (0) 52 07 / 89 03 - 0
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1/15 e-Mail b-a@hora.de
Internet www.hora-ba.com

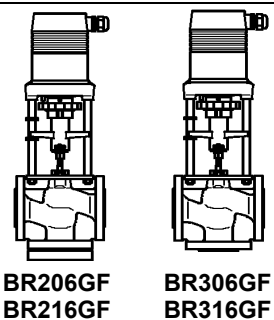
Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Excellence is our standard

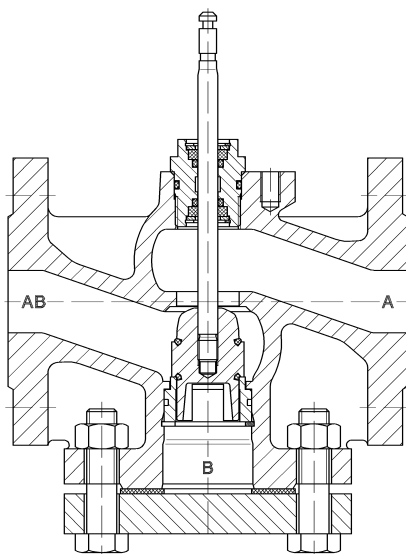
Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230

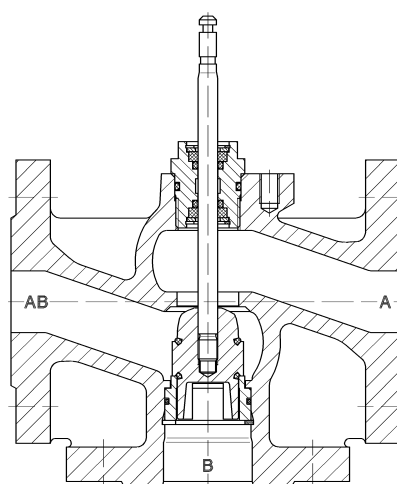


Drawing

DN 15 – DN 65 (stroke 20)

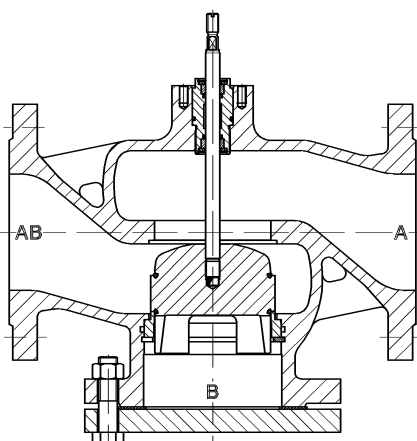


BR206GF / BR216GF

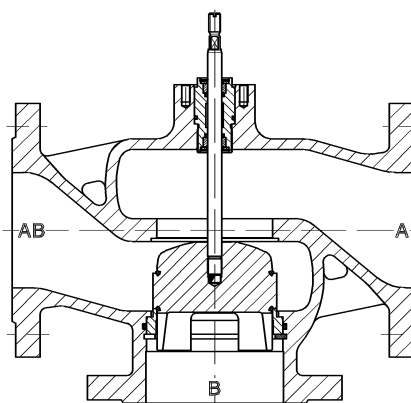


BR306GF / BR316GF

DN 65 (Stroke 30) – DN 100



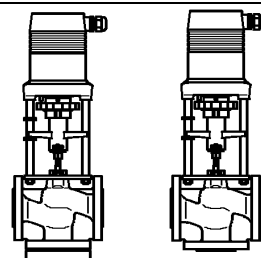
BR206GF / BR216GF



BR306GF / BR316GF

Flanged connection
PN 6 / PN 16
Cast iron

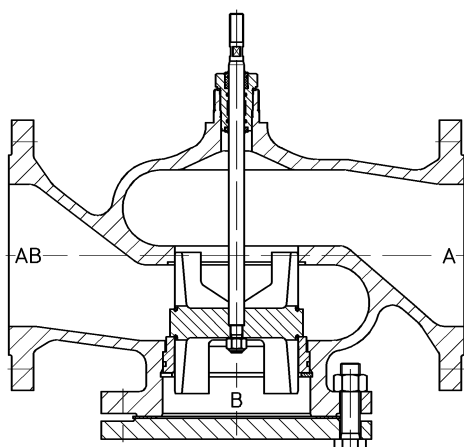
with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



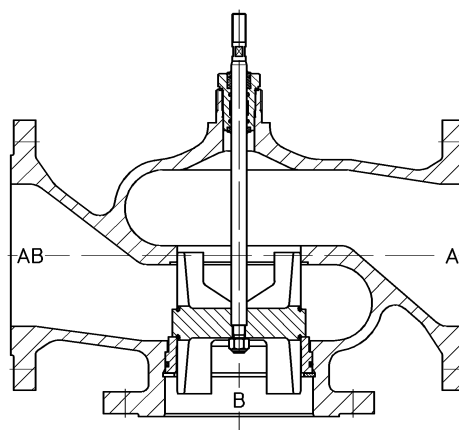
BR206GF
BR216GF

BR306GF
BR316GF

DN 125 – DN 150



BR216GF



BR316GF

Technical data actuator MC55 · MC65

Type		MC55/24	MC65/24	MC55/230	MC65/230	MC55Y	MC65Y
Actuating time ¹⁾	s/mm	9 · 5*		9 · 5*		9 · 5*	
Actuating thrust	kN	0.6		0.6		0.6	
Stroke	mm	max. 14	max. 20	max. 14	max. 20	max. 14	max. 20
Power supply	VAC	24 ±10%		230 +6% -10%		24 ±10%	
Power supply ²⁾	VDC	24 ±10%				24 ±10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%		50/60 ±5%	
Power consumption	VA	3.5		7		3.5	
Input signal ³⁾		3-point		3-point		0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm	
Hysteresis	V	0.3		0.3		0.3	

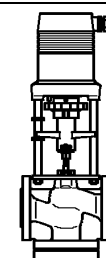
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

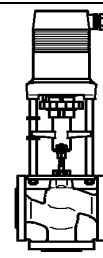
³⁾ Invertible input and output signal

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



BR206GF
BR216GF



BR306GF
BR316GF

Enclosure protection: IP 54 in automatic operation
IP 30 in manual operation

Resolution: electric 0.04 VDC
mechanical 0.06 mm

Mains connection: Actuator with terminal

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

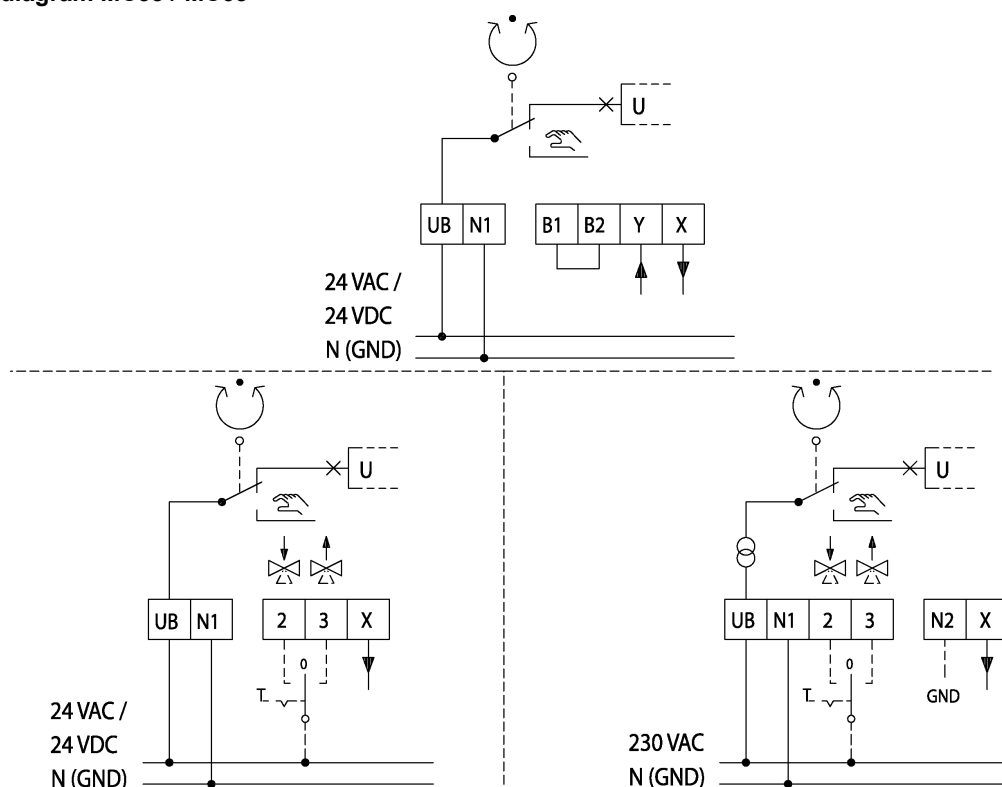
Ambient temperature: 0...+60°C

Weight: 1.5 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Adapter with coupling for external products

Circuit diagram MC55 / MC65



B1/B2 Connection of a binary signal (e.g. frost safety)

2.2.3
4/15

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Fax +49 (0) 52 07 / 89 03 - 80
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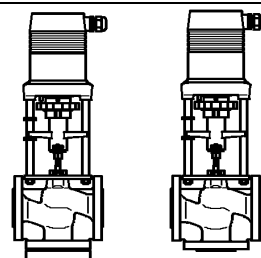
Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



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Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**

**BR306GF
BR316GF**

Technical data actuator MC100 – MC1000

Type		MC100/24	MC100/230
Actuating time ¹⁾	s/mm	12 · 9* · 4 · 1.9	12 · 9* · 4 · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

Type		MC160/24	MC161/24	MC160/230	MC161/230
Actuating time ¹⁾	s/mm	6 · 4*		6 · 4*	
Actuating thrust	kN	1.6		1.6	
Stroke	mm	max. 30	max. 20	max. 30	max. 20
Power supply	VAC	24 ±10%		230 +6% -10%	
Power supply ²⁾	VDC	24 ±10%		-	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	6		12	
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm	
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5		0.05 · 0.15 · 0.3 · 0.5	

¹⁾ Actuating time freely adjustable, presetting is marked with *

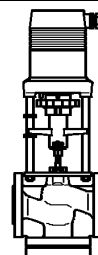
²⁾ only retified alternating voltage

³⁾ Invertible input and output signal

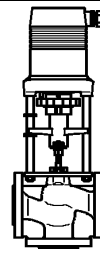
⁴⁾ Freely adjustable

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**



**BR306GF
BR316GF**

Type		MC250/24	MC250/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC400/24	MC400/230
Actuating time ¹⁾	s/mm	0.6 · 0.4*	0.6 · 0.4*
Actuating thrust	kN	4.0	4.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	50/60 ±5%	50/60 ±5%
Frequency	Hz	max. 50	max. 63
Power consumption	VA	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Input signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Output signal ³⁾		0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

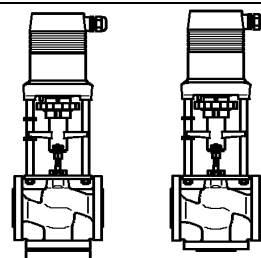
²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**

**BR306GF
BR316GF**

Type		MC500/24	MC500/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	5.0	5.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC1000/24	MC1000/230
Actuating time	s/mm	1	1
Actuating thrust	kN	10	10
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 63
Input signal ¹⁾		3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ¹⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ²⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution:

MC...	electric	0.04 VDC
MC100	mechanical	0.095 mm
MC160 / MC161	mechanical	0.05 mm
MC250 / MC500	mechanical	0.04 mm
MC400	mechanical	0.12 mm
MC1000	mechanical	0.05 mm

Operating mode:

MC100 – MC500	S3-50% ED c/h 1200	EN 60034-1
MC400 / MC1000	S3-30% ED c/h 1200	EN 60034-1

End position switch-off: load-dependent

¹⁾ Stellzeit frei wählbar, Voreinstellung ist mit * gekennzeichnet, vor Ort einstellbar

²⁾ nur gleichgerichtete Wechselspannung

³⁾ stetige Signale invertierbar

⁴⁾ vor Ort einstellbar

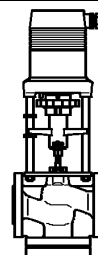
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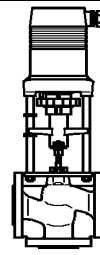
HORA
REGELARMATUREN
Excellence is our standard

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**



**BR306GF
BR316GF**

Ambient temperature: MC100 / MC160 / MC161 0...+60°C
MC250 / MC400 / MC500 / MC1000 -10...+60°C

Weight: MC100 2.5 kg
MC160 and MC161 3.2 kg
MC250/24 and MC500/24 7.0 kg
MC250/230 and MC500/230 8.2 kg
MC400 9.5 kg
MC1000 11.0 kg

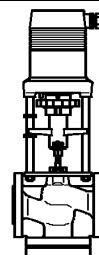
Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

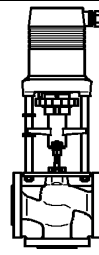
³⁾ MC100/MC160/MC161: Position switch unit and output signal 0(4)...20 mA not in combination

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230

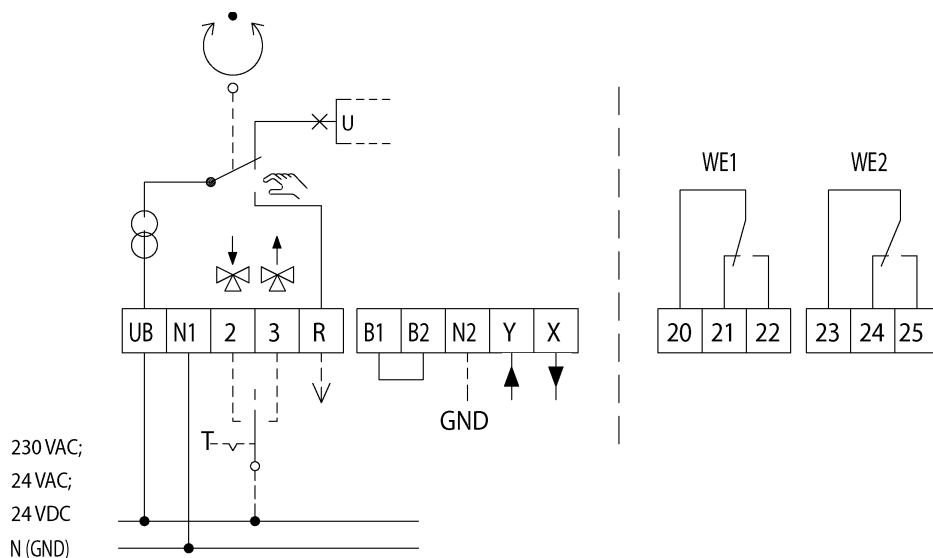


BR206GF
BR216GF



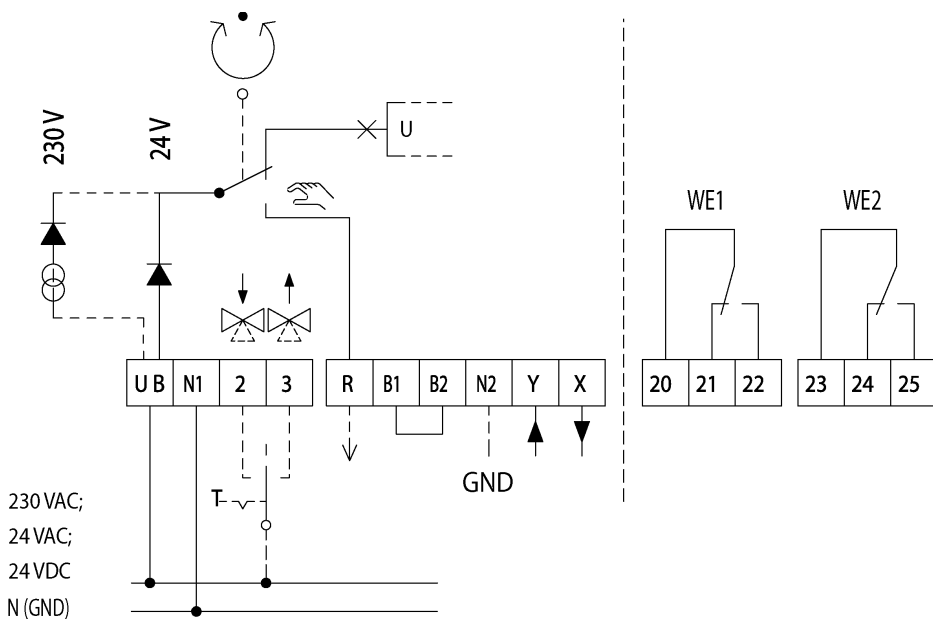
BR306GF
BR316GF

Circuit diagram MC100 / MC160 / MC161



B1/B2 Connection of a binary signal (e.g. frost safety)

Circuit diagram MC250 / MC400 / MC500 / MC1000



B1/B2 Connection of a binary signal (e.g. frost safety)

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9/15

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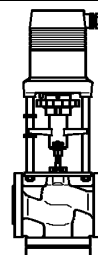
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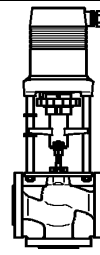
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Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**



**BR306GF
BR316GF**

Technical data valve with actuator

PN 6

DN		15	20	25	32	40	50	65	65	80	100
kvs-value m³/h		4 2.5 1.6 1.25 0.63	6.3 5	10 8	16 12.5	25 20	40 31.5	63 50	63 50	100 80	160 125
Stroke mm		14						20	30		
MC55/24 MC55/230 MC55Y	Actuating time ¹⁾	s	125								
			70*								
	Closing pressure	kPa	600	600	600	450	250	150			
MC65/24 MC65/230 MC65Y	Actuating time ¹⁾	s							180		
									100*		
	Closing pressure	kPa							100		
MC100/24 MC100/230	Actuating time ¹⁾	s	170						240		
			125*						180*		
			55						80		
			30						40		
	Closing pressure	kPa	600	600	600	600	550	350	150		
MC161/24 MC161/230	Actuating time ¹⁾	s					95	120			
							55*	80*			
	Closing pressure	kPa					600	600	350		
MC160/24 MC160/230	Actuating time ¹⁾	s							120	180	
									80*	120*	
	Closing pressure	kPa							350	230	140
MC250/24 MC250/230	Actuating time ¹⁾	s							100	150	
									50*	75*	
	Closing pressure	kPa							600	350	250
MC400/24 MC400/230	Actuating time ¹⁾	s							15	20	
									10*	15*	
	Closing pressure	kPa							600	600	400
MC500/24 MC500/230	Actuating time ¹⁾	s							100	150	
									50*	75*	
	Closing pressure	kPa							600	600	500

100 kPa = 1 bar = 10 mWS

¹⁾ Actuating time freely adjustable, presetting is marked with *

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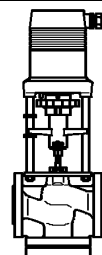
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Germany



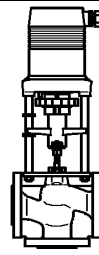
Excellence is our standard

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**



**BR306GF
BR316GF**

PN 16

DN		15	20	25	32	40	50	65	65	80	100	125	150
kvs-value		4	6.3	10	16	25	40	63	63	100	160	250	315
		2.5	5	8	12.5	20	31.5	50	50	80	125		
		1.6											
		1.25											
		0.63											
Stroke		mm						14	20	30		50	
MC55/24 MC55/230 MC55Y	Actuating time ¹⁾	s	125										
			70*										
	Closing pressure	kPa	1500	1250	750	450	250	150					
MC65/24 MC65/230 MC65Y	Actuating time ¹⁾	s							180				
									100*				
	Closing pressure	kPa							100				
MC100/24 MC100/230	Actuating time ¹⁾	s	170						240				
			125*						180*				
			55						80				
			30						40				
	Closing pressure	kPa	1600	1600	1500	900	550	350	150				
MC161/24 MC161/230	Actuating time ¹⁾	s				95		120					
						55*		80*					
	Closing pressure	kPa				1500	950	600	350				
MC160/24 MC160/230	Actuating time ¹⁾	s							120	180			
									80*	120*			
	Closing pressure	kPa							350	230	140		
MC250/24 MC250/230	Actuating time ¹⁾	s							100	150		250	
									50*	75*		125*	
	Closing pressure	kPa							600	350	250	160	120
MC400/24 MC400/230	Actuating time ¹⁾	s							15	20		30	
									10*	15*		20*	
	Closing pressure	kPa							950	650	400	200	130
MC500/24 MC500/230	Actuating time ¹⁾	s							100	150		250	
									50*	75*		125*	
	Closing pressure	kPa							1250	850	500	370	270
MC1000/24 MC1000/230	Actuating time ¹⁾	s										50	
	Closing pressure	kPa										800	550

100 kPa = 1 bar = 10 mWS

¹⁾ Actuating time freely adjustable, presetting is marked with *

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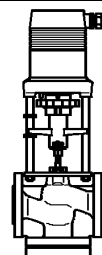
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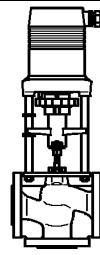
Excellence is our standard

Flanged connection
PN 6 / PN 16
Cast iron

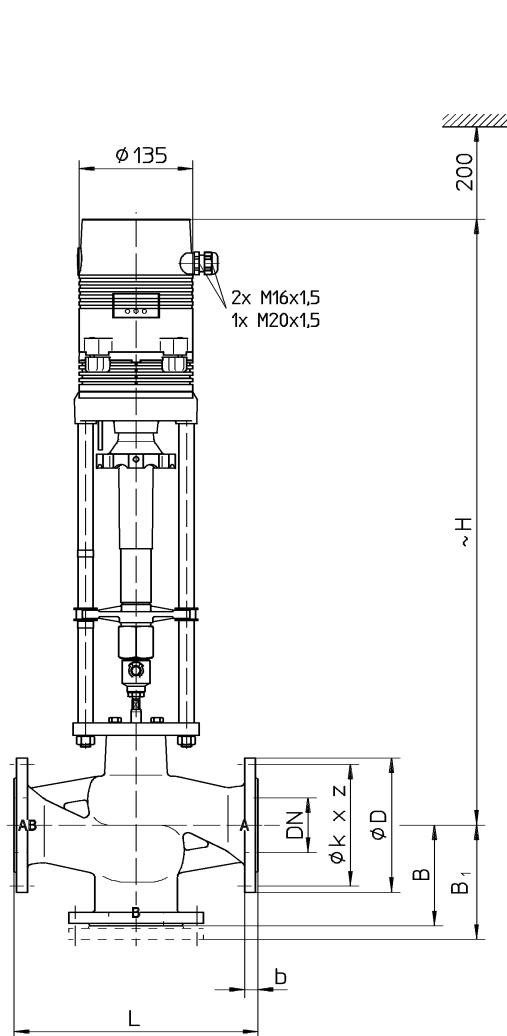
with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



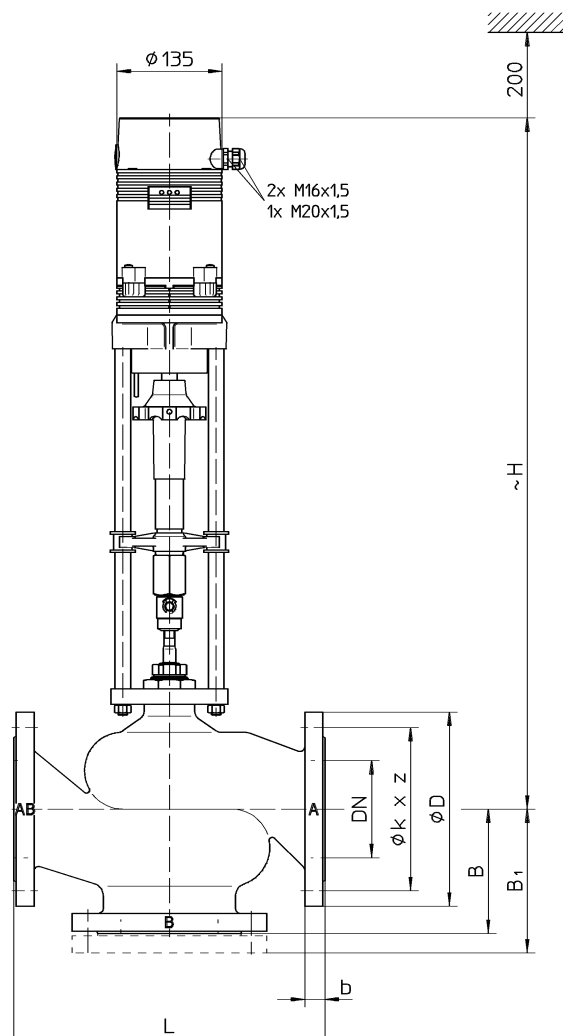
**BR206GF
BR216GF**



**BR306GF
BR316GF**



DN 65 (stroke 30) – DN 100



DN 125 – DN 150

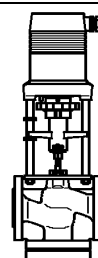
MC250 / MC400 / MC500 / MC1000

Installation instruction:

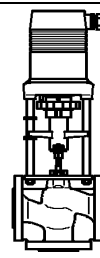
Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



BR206GF
BR216GF



BR306GF
BR316GF

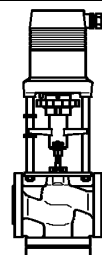
Dimension

PN 6

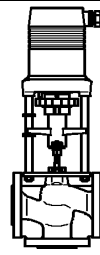
DN		15	20	25	32	40	50	65	80	100
L	mm	130	150	160	180	200	230	290	310	350
B	mm	65	70	75	95	100	100	120	130	150
B ₁	mm	86	93	98	119	124	124	144	158	178
Ø D	mm	80	90	100	120	130	140	160	190	210
Ø k	mm	55	65	75	90	100	110	130	150	170
z	mm	4x Ø11			4x Ø14			4x Ø18		
b	mm	12	14	14	16	16	16	16	18	18
H	MC55	24 VAC/230 VAC	mm	267	272	277	277	282	282	
	MC65	24 VAC/230 VAC	mm						335	
	MC100	24 VAC	mm	343	348	353	353	358	358	408
		230 VAC	mm	368	373	378	378	383	383	433
	MC161	24 VAC	mm					448	448	486
		230 VAC	mm					473	473	511
	MC160	24 VAC	mm						486	496
		230 VAC	mm						511	521
	MC250	24 VAC/230 VAC	mm						645	655
	MC400	24 VAC/230 VAC	mm						695	705
m	MC500	24 VAC/230 VAC	mm						645	655
	MC55	BR206GF	kg	4.3	5.4	6.3	8.6	10.3	12.0	
		BR306GF	kg	3.7	4.5	5.2	7.1	8.5	9.9	
	MC65	BR206GF	kg						19.4	
		BR306GF	kg						16.2	
	MC100	BR206GF	kg	5.3	6.4	7.3	9.6	11.3	13.0	20.4
		BR306GF	kg	4.7	5.5	6.2	8.1	9.5	10.9	17.2
	MC161	BR206GF	kg					12.0	13.7	21.1
		BR306GF	kg					10.2	11.6	17.9
	MC160	BR206GF	kg						21.1	29.5
		BR306GF	kg						17.9	25.2
	MC250/ MC500	BR206GF	kg						24.9	33.3
		BR306GF	kg						21.7	29.0
	24 VAC	BR206GF	kg						26.1	34.5
		BR306GF	kg						22.9	30.2
	230 VAC	BR206GF	kg						27.4	35.8
		BR306GF	kg						24.2	31.5
	MC400	BR206GF	kg							46.6
		BR306GF	kg							40.5

Flanged connection
PN 6 / PN 16
Cast iron

with electric actuators
MC55/24 • MC55/230 • MC55Y
MC65/24 • MC65/230 • MC65Y
MC100/24 • MC100/230
MC160/24 • MC160/230
MC161/24 • MC161/230
MC250/24 • MC250/230
MC400/24 • MC400/230
MC500/24 • MC500/230
MC1000/24 • MC1000/230



**BR206GF
BR216GF**

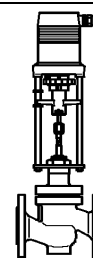


**BR306GF
BR316GF**

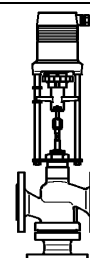
PN 16

DN		15	20	25	32	40	50	65	80	100	125	150
L	mm	130	150	160	180	200	230	290	310	350	400	480
B	mm	65	70	75	95	100	100	120	130	150	160	170
B ₁	mm	89	96	101	123	128	130	150	162	182	194	207
Ø D	mm	95	105	115	140	150	165	185	200	220	250	285
Ø k	mm	65	75	85	100	110	125	145	160	180	210	240
z	mm	4x Ø14			4x Ø18				8x Ø18			8x
b	mm	14	16	16	18	18	20	20	22	24	26	26
H	MC55	24 VAC/230 VAC	mm	267	272	277	277	282	282			
	MC65							335				
	MC100	24 VAC	mm	343	348	353	353	358	358	408		
		230 VAC	mm	368	373	378	378	383	383	433		
	MC161	24 VAC	mm				443	448	448	486		
		230 VAC	mm				468	473	473	511		
	MC160	24 VAC	mm						486	496	506	
		230 VAC	mm						511	521	531	
	MC250	24 VAC/230 VAC	mm						645	655	665	805
	MC400	24 VAC/230 VAC	mm						695	705	715	855
m	MC500	24 VAC/230 VAC	mm						645	655	665	805
	MC1000	24 VAC/230 VAC	mm								895	895
	MC55	BR216GF	kg	5.6	6.8	8.1	11.5	13.3	16.8			
		BR316GF	kg	4.6	5.5	6.5	9.1	10.6	13.1			
	MC65	BR216GF	kg						26.3			
		BR316GF	kg						21.5			
	MC100	BR216GF	kg	6.6	7.8	9.1	12.5	14.3	17.8	27.3		
		BR316GF	kg	5.6	6.5	7.5	10.1	11.6	14.1	22.5		
	MC161	BR216GF	kg				13.2	15.0	18.5	28.0		
		BR316GF	kg				10.8	12.3	14.8	23.2		
m	MC160	BR216GF	kg						28.0	33.0	46.1	
		BR316GF	kg						23.2	27.2	39.2	
	MC250/ MC500	BR216GF	kg						31.8	36.8	49.9	69.0
	24 VAC	BR316GF	kg						27.0	31.0	43.0	59.0
	MC250/ MC500	BR216GF	kg						33.0	38.0	51.1	70.2
	230 VAC	BR316GF	kg						28.2	32.2	44.2	60.2
	MC400	BR216GF	kg						34.3	39.3	52.4	71.5
		BR316GF	kg						29.5	33.5	45.5	61.5
	MC1000	BR216GF	kg								73	101
		BR316GF	kg								63	88

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

Features

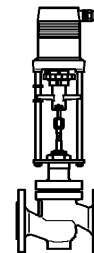
- Suitable in building and process engineering for various mediums 0...+200°C
- Suitable with stuffing box extension or stem seal with stainless steel bellow to –10...+350°C and for valves made of stainless steel to –30...+350°C
- Suitable with stem heater for water with antifreeze compounds down to –10°C and for valves made of stainless steel to –30
- Microprocessor controlled
- Automatic self-calibration on start up

Technical data valve

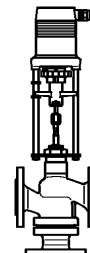
Series	BR216	BR225	BR240S	BR240E
Form	Two-way			
Diameter nominal	DN 125 – DN 300	DN 15 – DN 250 ¹⁾	DN 15 – DN 300	
Pressure rating	PN 16	PN 16 / PN 25 / PN 40	PN 40	
Body	Cast iron EN-JL1040	Spheroidal graphite EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug	CrNi-steel 1.4057			CrNi-steel 1.4571
Stem	CrMo-steel 1.4122			CrNi-steel 1.4571
Characteristic	≤ DN 50: equal % Option: linear ≥ DN 65: eq. % mod. Option: linear Perforated plug: equal % Option: linear			
Stroke [mm] MC103 – MC1503	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 50 (DN 80 – DN 100) 60 (DN 125 – DN 200) 80 (DN 250 – DN 300)			
Stroke [mm] M300(Y)	60 (DN 125 – DN 150) 25 kN 80 (DN 200) 20 kN / 25 kN 90 (DN 250 – DN 300) 20 kN / 25 kN			
Rangeability	≥ 50:1			
Connection type	Flanges acc. EN 1092-2 Typ 21		Flanges acc. EN 1092-1 Typ 21	
Pressure, Temp.	Acc. EN 1092 part 2		Acc. EN 1092 part 1	

¹⁾ DN 150: PN 16 or PN 25
DN 200: PN 16

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Series	BR316	BR325	BR340S	BR340E
Form	Three-way			
Diameter nominal	DN 125 – DN 300	DN 15 – DN 250 ¹⁾	DN 15 – DN 300	
Pressure rating	PN 16	PN 25	PN 40	
Body	Cast iron ²⁾ EN-JL1040	Spheroidal graphite EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug	CrNi-steel 1.4057			CrNi-steel 1.4571
Stem	CrMo-steel 1.4122			CrNi-steel 1.4571
Characteristic	≤ DN 40: A→AB equal % Option: linear B→AB linear ≥ DN 50: A→AB eq. % mod. Option: linear B→AB linear			
Stroke [mm] MC103 – MC1503	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 50 (DN 80 – DN 100) 60 (DN 125 – DN 200) 80 (DN 250 – DN 300)			
Stroke [mm] M300(Y)	60 (DN 125 – DN 150) 25 kN 80 (DN 200) 20 kN / 25 kN 90 (DN 250 – DN 300) 20 kN / 25 kN			
Rangeability	≥ 50:1			
Connection type	Flanges acc. EN 1092-2 Typ 21		Flanges acc. EN 1092-1 Typ 21	
Pressure, Temp.	Acc. EN 1092 part 2		Acc. EN 1092 part 1	

Function: BR216/225/240S/240E as two-way valve
 BR316/325/340S/340E as mixing valve or
 BR316/325/340S/340E as diverting valve with reduced closing pressure

Face to face dimension: Acc. EN 558-1 basic series 1

Leakage rate: EN 1349 – seat-leakage IV L1 (≤ 0.01% of kvs-value)

Stem sealing: O-rings made of EPDM 0...+180°C chilled and hot-water with max. 50% antifreeze and anti-corrosive compounds: glycol, ethylene glycol, mono ethylene, ethanol, methyl alcohol, glycerine, antifrogen® N+L

O-rings made of FKM 0...+200°C media based on mineral oil

O-rings made of Fluoraz® 0...+200°C hot water, steam and oil

PTFE-lip-rings 0...+200°C hot water, steam and oil

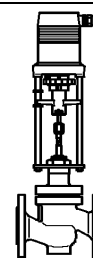
Graphite-Packing 0...+350°C ³⁾ hot water, steam and oil

¹⁾ DN 150: PN 16 or PN 25
 DN 200: PN 16

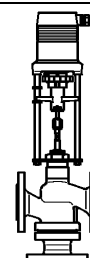
²⁾ Due to a change in material, we reserve the right to supply valves up to DN 100 in higher grade spheroidal graphite EN-JS1024

³⁾ only in combination with stuffing box extension or stem seal with stainless steel bellow

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Valve variant and accessories

for two-way and three-way valves:

- Housing connecting flanges: with groove acc. to EN 1092-1 type D,
with socket acc. to EN 1092-1 type F,
with spigot acc. to EN 1092-1 type E
- Body and plug seat grounded in, EN 1349 – seat-leakage IV-S1 L1 ($\leq 0.0005\%$ of kvs-value)
- Plug with soft sealing made of NBR, EPDM, PTFE; EN 1349 – seat-leakage VI G1 (tight sealing)
- Stem heater: 24 VAC, 50 Hz or 24 VDC
 $P_{max.} \approx 200 \text{ VA}$
 $P_N \approx 45 \text{ VA}$
S1 100% ED
IP 54
- Transformer for stem heater: 230/24 VAC, 50 Hz
- Stem seal with stainless steel bellow: for valves made of cast iron $-10^\circ\text{C} \dots +200^\circ\text{C}$
for valves made of spheroidal graphite
and cast steel $-10^\circ\text{C} \dots +350^\circ\text{C}$
for valves made of stainless steel $-30^\circ\text{C} \dots +350^\circ\text{C}$
Stuffing box made of graphite
Stuffing box made of graphite
- Stuffing box extension: 100 mm
for valves made of spheroidal graphite
and cast steel $-10^\circ\text{C} \dots +350^\circ\text{C}$
for valves made of stainless steel $-30^\circ\text{C} \dots +350^\circ\text{C}$
- Epoxy resin special varnish as a corrosion resistant in case of condensed water, max. 80°C ¹⁾
- technical silicon free version, max. 180°C
- oil and fat free for oxygen application

only for two-way valves:

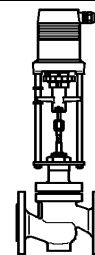
- Screwed seat: for valves made of cast iron, spheroidal graphite and cast steel made of 1.4122,
unhardened or hardened
for valves made of stainless steel made of 1.4571
- Perforated plug: for valves made of cast iron, spheroidal graphite and cast steel made of 1.4057,
unhardened or hardened
for valves made of stainless steel made of 1.4571
- Housing seat SKWAM plated or Stellite 6 plated ²⁾
- Balanced plug, max. operating temperature 200°C

¹⁾ except valves made of stainless steel

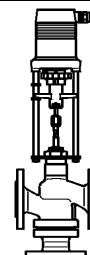
²⁾ only for valves made of spheroidal graphite and stainless steel

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN

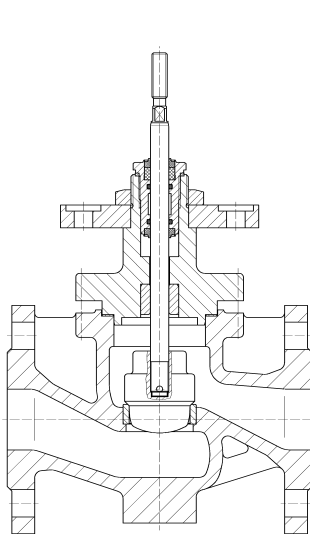


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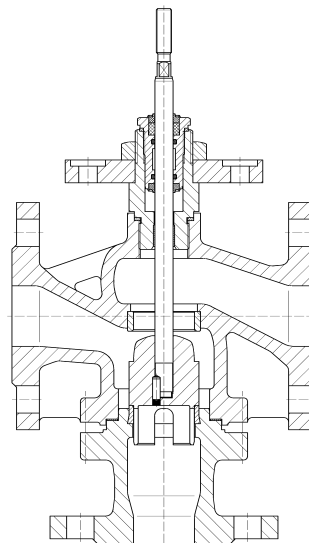


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Drawing



BR216/225/240S/240E



BR316/325/340S/340E

Technical data actuator MC103 – MC1503

Type		MC103/24 ⁵⁾	MC103/230 ⁵⁾
Actuating time ¹⁾	s/mm	12 · 9 · 4* · 1.9	12 · 9 · 4* · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

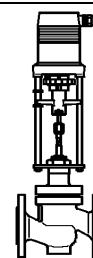
²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

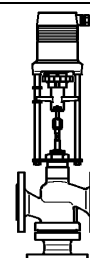
⁴⁾ Freely adjustable

⁵⁾ Actuator suitable for medium temperature up to 150°C

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Type		MC163/24	MC163/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Actuating thrust	kN	1.6	1.6
Stroke	mm	max. 30	max. 30
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC253/24	MC253/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

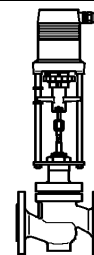
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

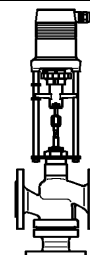
³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Type		MC403/24	MC403/230
Actuating time ¹⁾	s/mm	0.6 · 0.4*	0.6 · 0.4*
Actuating thrust	kN	4.0	4.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 63
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC503/24	MC503/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.*
Actuating thrust	kN	5.0	5.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

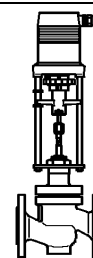
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

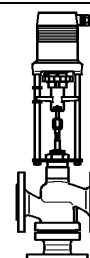
³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Type		MC1003/24	MC1503/24	MC1003/230	MC1503/230
Actuating time ¹⁾	s/mm	1	2	1	2
Actuating thrust	kN	10	15	10	15
Stroke	mm	max. 80		max. 80	
Power supply	VAC	24 ±10%		230 +6% -10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	max. 50		max. 63	
Input signal ²⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm	
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5		0.05 · 0.15 · 0.3 · 0.5	

Enclosure protection: IP 54

Resolution:	MC...	electric	0.04 VDC
	MC103	mechanical	0.095 mm
	MC163 / MC1003 / MC1503	mechanical	0.05 mm
	MC253 / MC503	mechanical	0.04 mm
	MC403	mechanical	0.12 mm

Operating mode:	MC103 / MC163 / MC253 / MC503	S3-50% ED c/h 1200	EN 60034-1
	MC403 / MC1003 / MC1503	S3-30% ED c/h 1200	EN 60034-1

End position switch-off: load-dependent

Ambient temperature:	MC103 / MC163	0...+60°C
	MC253 / MC403 / MC503 / MC1003	-10...+60°C
	MC1503	-10...+50°C

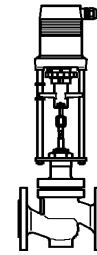
Weight:	MC103	2.5 kg
	MC163	4.0 kg
	MC253/24 and MC503/24	7.4 kg
	MC253/230 and MC503/230	8.6 kg
	MC403	9.5 kg
	MC1003 / MC1503	11.5 kg

¹⁾ Actuating time freely adjustable, presetting is marked with *

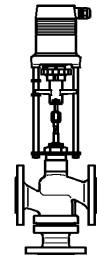
²⁾ Invertible input and output signal

³⁾ Freely adjustable

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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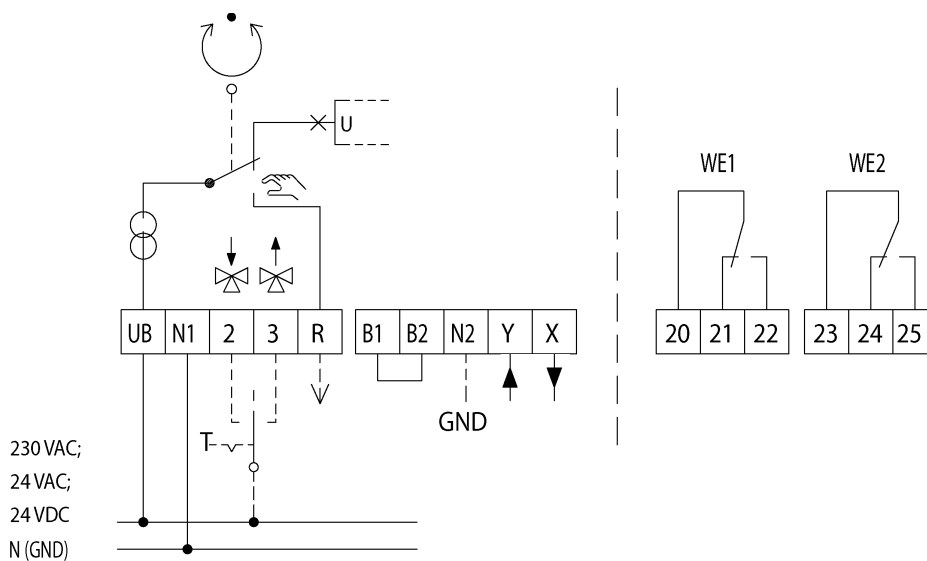


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Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Circuit diagram MC103 / MC163

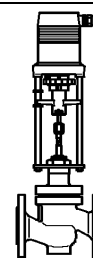


B1/B2 Connection of a binary signal (e.g. frost safety)

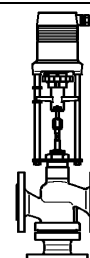
¹⁾ MC103/MC163: Position switch unit and output signal 0(4)...20 mA not in combination

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN

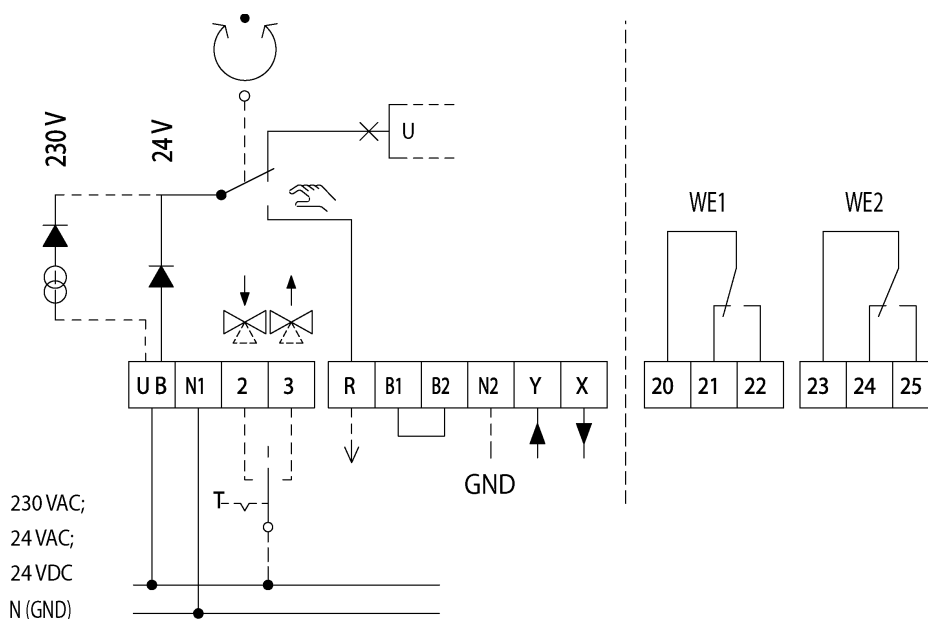


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Circuit diagram MC253 / MC403 / MC503 / MC1003 / MC1503



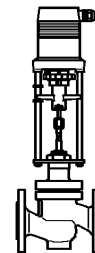
Technical data actuator M300(Y)

Type		M300 – 20 kN		M300Y – 20 kN	
Actuating time at 50 Hz ¹⁾	s/mm	1.2	2.4	1.2	2.4
Actuating thrust	kN	20		20	
Stroke	mm	max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%	
Frequency	Hz	50 or 60 ±5%		50 or 60 ±5%	
Power consumption	VA	240	170	260	190
Input signal ²⁾		3-point		0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm	
Output signal		-		0(2)...10 VDC max. 20 mA 0(4)...20 mA ¹⁾ min. 500 Ohm max. 500 Ohm	

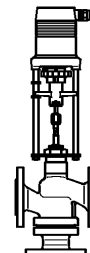
¹⁾ Please state when ordering

²⁾ Invertible input signal

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



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Type		M300 – 25 kN		M300Y – 25 kN	
Actuating time at 50 Hz ¹⁾	s/mm	1.2	2.4	1.2	2.4
Actuating thrust	kN	25		25	
Stroke	mm	max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%	
Frequency	Hz	50 or 60 ±5%		50 or 60 ±5%	
Power consumption	VA	240	170	260	190
Input signal ²⁾		3-point		0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm	
Output signal		-		0(2)...10 VDC max. 20 mA min. 500 Ohm 0(4)...20 mA ¹⁾ max. 500 Ohm	

Enclosure protection: IP 65

Limit switches (motor): max. rated load: resistive load: 10 A
inductive load: 5 A

Operating mode: S4-30% ED c/h 600 EN 60034-1

End position switch-off: Two-way valves: Extending actuator spindle: load-dependent
Retracting actuator spindle: travel (WE-S3) and load-depend.
Three-way valves: Extending and retracting actuator spindle: load-dependent

Ambient temperature: 0...+60°C

Weight: 22 kg

Actuator variant and accessories

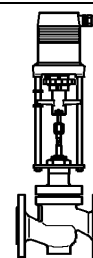
Type	M300 20 kN	M300 25 kN	M300Y 20 kN	M300Y 25 kN
Potentiometer (max. 2 pieces) 0,1 / 0,2 / 0,5 / 1 / 5 / 10 kOhm 1,5 VA	•	•		
Position switch unit 2 switches (WE-S4/WE-S5), max. 250 VAC potential free, infinitely adjustable max. rated load: resistive load 5 A inductive load 3 A filament lamp 1 A	•	•	•	•
Heater -20°C ... +60°C 230 VAC, 15 VA	•	•	•	•
Electric position indication Voltage: 24 VDC Output signal: X=0(4)...20 mA max. 500 Ohm	•	•		

¹⁾ Please state when ordering

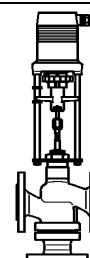
²⁾ Invertible input signal

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



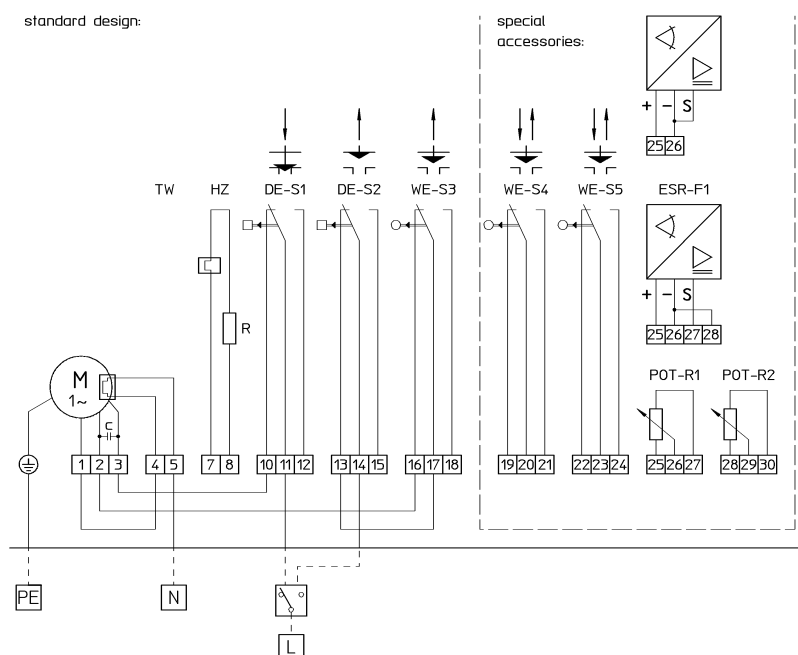
**BR216
BR225
BR240S
BR240E**



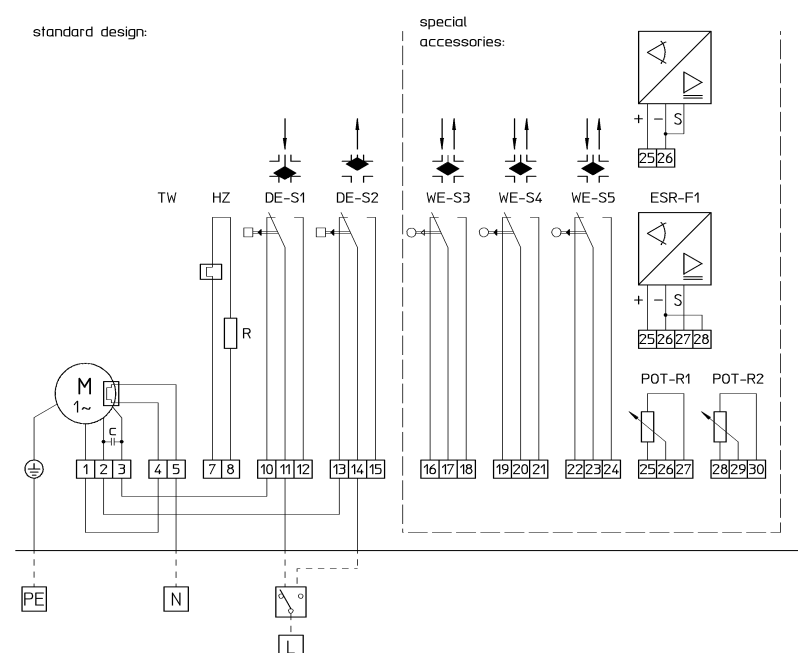
**BR316
BR325
BR340S
BR340E**

Circuit diagram M300 - 20 kN / M300 - 25 kN

Two-way valves



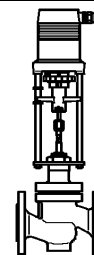
Three-way valves



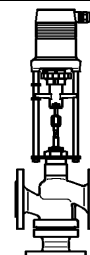
Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators

MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



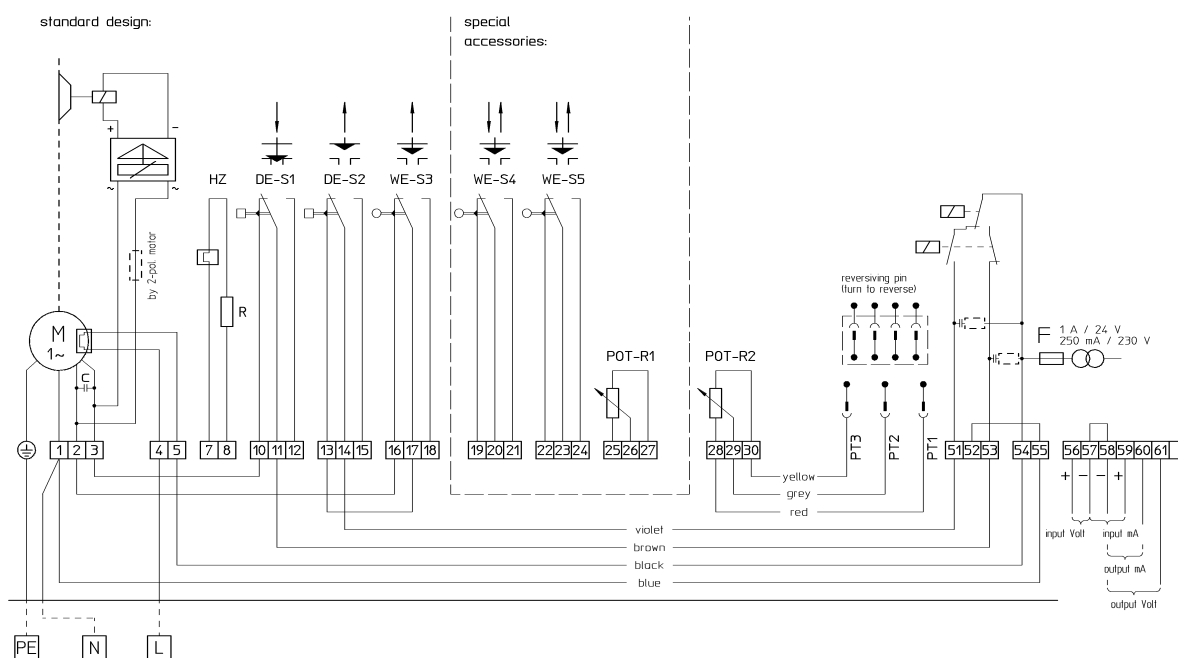
BR216
BR225
BR240S
BR240E



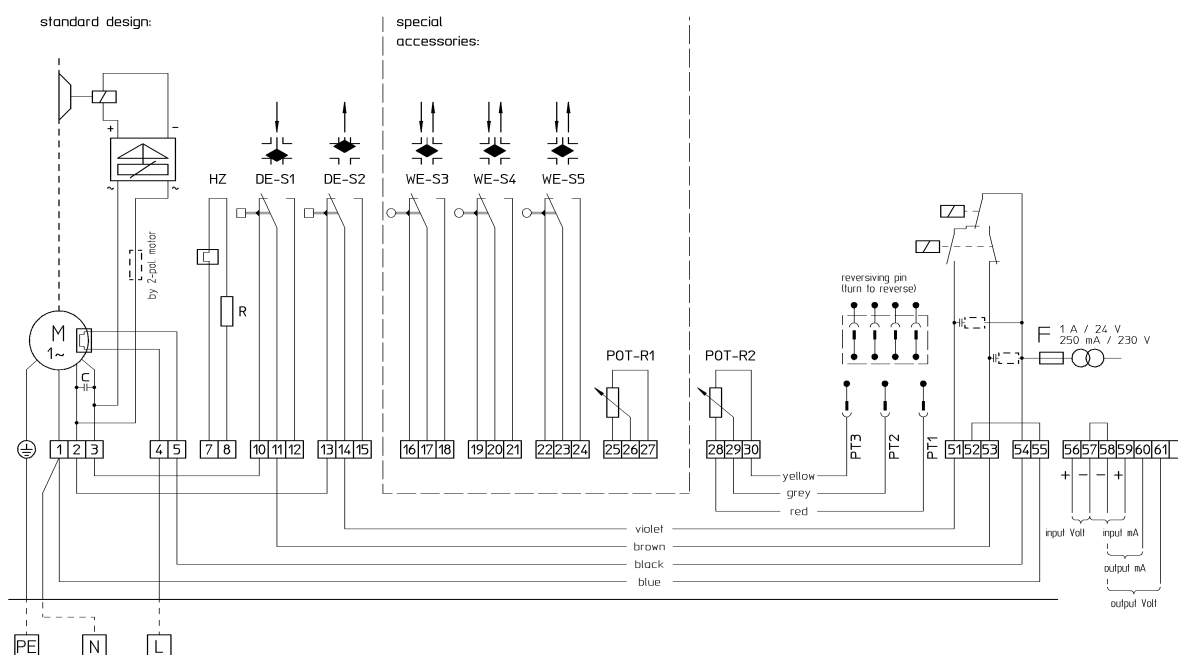
BR316
BR325
BR340S
BR340E

Circuit diagram M300Y - 20 kN / M300Y - 25 kN

Two-way valves

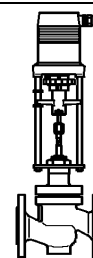


Three-way valves

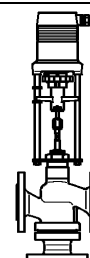


Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

Technical data valve with actuator

PN 16 BR216

DN			125	150	200	250	300
kvs-value m³/h			250	400	630	1000	1250
			200 ^S	315 ^S	500 ^S	800	1000
			160	250	400	630	800
			125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	500 ^L	630 ^L
Stroke mm			60			80	
MC403/ 24 MC403/ 230	t ¹⁾	s	40				
			25*				
	Δp _s	kPa	200	130			
MC503/ 24 MC503/ 230	t ¹⁾	s	300				
			150*				
	Δp _s	kPa	290	190			
MC1003/ 24	t	s	60			80	
MC1003/ 230	Δp _s	kPa	500	350	200	100	
MC1503/ 24	t	s	120			160	
MC1503/ 230	Δp _s	kPa	950	700	370	220	150

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

DN			125	150	200	250	300
kvs-value m³/h			250	400	630	1000	1600
			200 ^S	315 ^S	500 ^S	800	1250
			160	250	400	630 ^L	1000
			125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	500 ^L	800 ^L
Stroke mm			60		80	90	
M300/ M300Y 20 kN	t ²⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1400	980	540	340	240
M300/ M300Y 25 kN	t ²⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1600	1250	690	440	300

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Please state when ordering

^{L)} Available with perforated plug

^{S)} Special-kvs-value

2.3.1
13/29
Phone +49 (0) 52 07 / 89 03 - 0
Fax +49 (0) 52 07 / 89 03 - 80
e-Mail b-a@hora.de
Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany

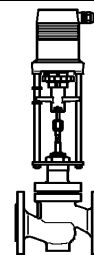


Excellence is our standard

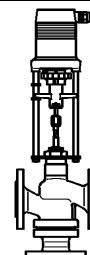
Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators

MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 16 BR316

DN			125	150	200	250	300
kvs-value	m³/h		250	400	630	1000	1250
			200	315	500	800	1000
			160 ^S	250 ^S	400 ^S	630	800
			125 ^S	200 ^S	315 ^S	500	630
Stroke		mm	60			80	
MC403/ 24 MC403/ 230	t ¹⁾	s	40				
			25*				
	Δp _s	kPa	200	130			
MC503/ 24 MC503/ 230	t ¹⁾	s	300				
			150*				
	Δp _s	kPa	290	190			
MC1003/ 24 MC1003/ 230	t	s	60			80	
	Δp _s	kPa	500	350	200	100	
MC1503/ 24	t	s	120			160	
MC1503/ 230	Δp _s	kPa	950	700	370	220	150

PN 16 BR316

DN			125	150	200	250	300
kvs-value	m³/h		250	400	630	1000	1600
			200	315	500	800	1250
			160 ^S	250 ^S	400 ^S	630	1000
			125 ^S	200 ^S	315 ^S	500	800
Stroke		mm	60		80	90	
M300/ M300Y 20 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1400	980	540	340	240
M300/ M300Y 25 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1600	1250	690	440	300

100 kPa = 1 bar = 10 mWS

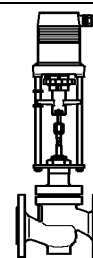
Δp_s: Closing pressure

¹⁾ Please state when ordering

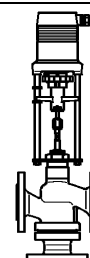
^{S)} Special-kvs-value

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR225

DN			15	15	20	25	32	40	50	65 ²⁾	80	100 ²⁾	125 ²⁾	150 ³⁾	200 ⁴⁾			
kvs-value m³/h			4 ^L	2.5 1.6 1.25 1.0 0.63 0.4 0.25 0.16	6.3 ^L 5 ^{S/L} 4 ^L 2.5 ^{S/L}	10 ^{S/L} 8 ^{S/L} 6.3 ^L 5 ^{S/L}	16 12.5 ^S 10 ^L 8 ^{S/L}	25 20 ^S 16 ^L 12.5 ^{S/L}	40 31.5 ^S 25 ^L 20 ^{S/L}	63 50 ^S 40 ^L 31.5 ^{S/L}	100 ^S 80 ^S 63 ^L 50 ^{S/L}	160 125 ^S 100 ^L 80 ^{S/L}	250 ^S 200 ^S 160 125 ^{S/L}	400 315 ^S 250 200 ^{S/L}	630 500 ^S 400 315 ^{S/L}			
			Stroke mm							20		30		50		60		
			MC103/ 24 MC103/ 230	t ¹⁾	s	240												
						180												
						80*												
						40												
			Δp _s	kPa	1250	3500	1250	1050	600	350								
MC163/ 24 MC163/ 230	t ¹⁾	s	120							180								
			80*							120*								
	Δp _s	kPa	2400	4000	2400	2050	1250	750	450	300								
MC253/ 24 MC253/ 230	t ¹⁾	s	100							150		250						
			50*							75*		125*						
	Δp _s	kPa	4000	4000	4000	3500	2200	1400	850	540	350	200						
MC403/ 24 MC403/ 230	t ¹⁾	s	15							20		30		40				
			10*							15*		20*		25*				
	Δp _s	kPa	4000	4000	4000	4000	3700	2400	1500	950	650	400	200	130				
MC503/ 24 MC503/ 230	t ¹⁾	s	100							150		250		300				
			50*							75*		125*		150*				
	Δp _s	kPa	4000	4000	4000	4000	4000	3150	1950	1250	850	500	290	190				
MC1003/ 24	t	s								30		50		60				
MC1003/ 230	Δp _s	kPa								2150		1500	950	500	350	200		
MC1503/ 24	t	s												120				
MC1503/ 230	Δp _s	kPa												950	700	370		

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ PN 16 or PN25-40

³⁾ PN 16 or PN25

⁴⁾ PN 16

^{L)} Available with perforated plug

^{S)} Special-kvs-value

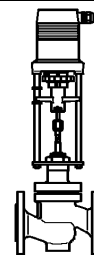
2.3.1
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Fax +49 (0) 52 07 / 89 03 - 80
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Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany

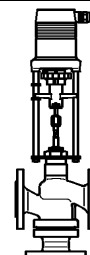


Excellence is our standard

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR225

DN			125 ²⁾	150 ³⁾	200 ⁴⁾
kvs-value			250	400	630
			200 ^S	315 ^S	500 ^S
			160	250	400
			125 ^{S/L}	200 ^{S/L}	315 ^{S/L}
Stroke			60		80
M300/ M300Y 20 kN	t ¹⁾	s	155		205
			80		105
	Δp _s	kPa	1400	980	540
M300/ M300Y 25 kN	t ¹⁾	s	155		205
			80		105
	Δp _s	kPa	1800	1250	690

100 kPa = 1 bar = 10 mWS

Δp_s : Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ Please state when ordering

²⁾ PN 16 or PN25-40

³⁾ PN 16 or PN25

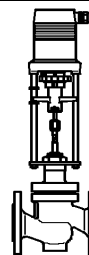
⁴⁾ PN 16

^{L)} Available with perforated plug

^{S)} Special-kvs-value

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR325

DN			15		20	25	32	40	50	65 ²⁾	80	100 ²⁾	125 ²⁾	150 ³⁾	200 ⁴⁾		
kvs-value m³/h			4		6.3	10	16	25	40	63	100	160	250	400	630		
			2.5		5	8	12.5	20	31.5	50	80	125	200	315	500		
					4 ^s	6.3 ^s	10 ^s	16 ^s	25 ^s	40 ^s	63 ^s	100 ^s	160 ^s	250 ^s	400 ^s		
					2.5 ^s	5 ^s	8 ^s	12.5 ^s	20 ^s	31.5 ^s	50 ^s	80 ^s	125 ^s	200 ^s	315 ^s		
Stroke			mm		20						30		50		60		
MC103/ 24 MC103/ 230	t ¹⁾	s	240														
			180														
			80*														
			40														
	Δp _s	kPa	1250		1250	1050	600	350									
MC163/ 24 MC163/ 230	t ¹⁾	s	120						180								
			80*						120*								
	Δp _s	kPa	2400		2400	2050	1250	750	450	300							
MC253/ 24 MC253/ 230	t ¹⁾	s	100						150		250						
			50*						75*		125*						
	Δp _s	kPa	4000		4000	3500	2200	1400	850	540	350	200					
MC403/ 24 MC403/ 230	t ¹⁾	s	15						20		30		40				
			10*						15*		20*		25*				
	Δp _s	kPa	4000		4000	4000	3700	2400	1500	950	650	400	200	130			
MC503/ 24 MC503/ 230	t ¹⁾	s	100						150		250		300				
			50*						75*		125*		150*				
	Δp _s	kPa	4000		4000	4000	4000	3150	1950	1250	850	500	290	190			
MC1003/ 24 MC1003/ 230	t	s								30		50		60			
	Δp _s	kPa								2150		1500	950	500	350	200	
MC1503/ 24 MC1503/ 230	t	s													120		
	Δp _s	kPa													950	700	370

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ PN 16 or PN25-40

³⁾ PN 16 or PN25

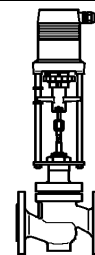
⁴⁾ PN 16

⁵⁾ Special-kvs-value

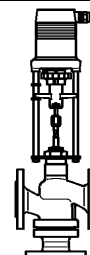
Control valves with electric actuators up to 350°C

PN 16-40 **2.3.1**

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR325

DN			125 ²⁾	150 ³⁾	200 ⁴⁾
kvs-value m³/h			250	400	630
			200	315	500
			160 ^S	250 ^S	400 ^S
			125 ^S	200 ^S	315 ^S
Stroke mm			60		80
M300/ M300Y 20 kN	t ¹⁾	s	155		205
			80		105
	Δp _s	kPa	1400	980	540
M300/ M300Y 25 kN	t ¹⁾	s	155		205
			80		105
	Δp _s	kPa	1800	1250	690

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ Please state when ordering

²⁾ PN 16 or PN25-40

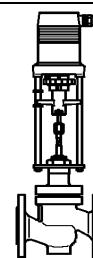
³⁾ PN 16 or PN25

⁴⁾ PN 16

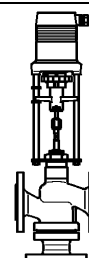
⁵⁾ Special-kvs-value

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 40 BR240S / BR240E

DN			15	15	20	25	32	40	50	65	80	100	125	150	200	250	300		
kvs-value m³/h			4 ^L	2.5 1.6 1.25 1.0 0.63 0.4 0.25 0.16	6.3 ^L 5 ^{S/L} 4 ^L 2.5 ^{S/L}	10 8 ^{S/L} 6.3 ^L 5 ^{S/L}	16 12.5 ^S 10 ^L 8 ^{S/L}	25 20 ^S 16 ^L 12.5 ^{S/L}	40 31.5 ^S 25 ^L 20 ^{S/L}	63 50 ^S 40 ^L 31.5 ^{S/L}	100 80 ^S 63 ^L 50 ^{S/L}	160 125 ^S 100 ^L 80 ^{S/L}	250 200 ^S 160 125 ^{S/L}	400 315 ^S 250 200 ^{S/L}	630 500 ^S 400 315 ^{S/L}	1000 800 630 500 ^L 400 ^L	1250 1000 800 630 ^L		
Stroke mm			20						30		50		60			80			
MC103/ 24 MC103/ 230	t ¹⁾	s	240																
			180																
			80*																
			40																
		Δp _s	kPa	1250	3500	1250	1050	600	350										
MC163/ 24 MC163/ 230	t ¹⁾	s	120						180										
			80*						120*										
		Δp _s	kPa	2400	4000	2400	2050	1250	750	450	300								
MC253/ 24 MC253/ 230	t ¹⁾	s	100						150		250								
			50*						75*		125*								
		Δp _s	kPa	4000	4000	4000	3500	2200	1400	850	540	350	200						
MC403/ 24 MC403/ 230	t ¹⁾	s	15						20		30		40						
			10*						15*		20*		25*						
		Δp _s	kPa	4000	4000	4000	4000	3700	2400	1500	950	650	400	200	130				
MC503/ 24 MC503/ 230	t ¹⁾	s	100						150		250		300						
			50*						75*		125*		150*						
		Δp _s	kPa	4000	4000	4000	4000	4000	3150	1950	1250	850	500	290	190				
MC1003/ 24	t	s								30		50		60			80		
MC1003/ 230	Δp _s	kPa								2150		1500	950	500	350	200	100		
MC1503/ 24	t	s											120			160			
MC1503/ 230	Δp _s	kPa											950		700	370	220	150	

100 kPa = 1 bar = 10 mWS
Δp_s: Closing pressure

¹⁾ Actuating time freely adjustable, presetting is marked with *

^{L)} Available with perforated plug

^{S)} Special-kvs-value

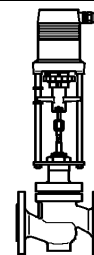
2.3.1 Phone +49 (0) 52 07 / 89 03 - 0
19/29 Fax +49 (0) 52 07 / 89 03 - 80
e-Mail b-a@hora.de
Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Excellence is our standard

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 40 BR240S / BR240E

DN			125	150	200	250	300
kvs-value m³/h			250	400	630	1000	1600
			200 ^S	315 ^S	500 ^S	800	1250
			160	250	400	630 ^L	1000
			125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	500 ^L	800 ^L
Stroke mm			60		80	90	
M300/ M300Y 20 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1400	980	540	340	240
M300/ M300Y 25 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1800	1250	690	440	300

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

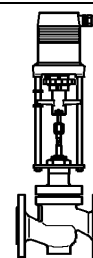
¹⁾ Please state when ordering
^{L)} Available with perforated plug
^{S)} Special-kvs-value

Control valves with electric actuators up to 350°C

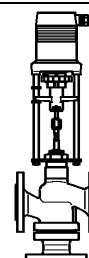
PN 16-40 **2.3.1**

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 40 R340S / BR340E

DN			15		20	25	32	40	50	65	80	100	125	150	200	250	300	
kvs-value			4 2.5		6.3 5 4 ^s 2.5 ^s	10 8 6.3 ^s 5 ^s	16 12.5 10 ^s 8 ^s	25 20 16 ^s 12.5 ^s	40 31.5 25 ^s 20 ^s	63 50 40 ^s 31.5 ^s	100 80 63 ^s 50 ^s	160 125 100 ^s 80 ^s	250 200 160 ^s 125 ^s	400 315 250 ^s 200 ^s	630 500 400 ^s 315 ^s	1000 800 630 500 400	1250 1000 800 630	
Stroke			mm		20				30		50		60			80		
MC103/ 24 MC103/ 230	t ¹⁾	s	240															
			180															
			80*															
			40															
	Δp _s	kPa	1250		1250	1050	600	350										
MC163/ 24 MC163/ 230	t ¹⁾	s	120						180									
			80*						120*									
	Δp _s	kPa	2400		2400	2050	1250	750	450	300								
MC253/ 24 MC253/ 230	t ¹⁾	s	100						150		250							
			50*						75*		125*							
	Δp _s	kPa	4000		4000	3500	2200	1400	850	540	350	200						
MC403/ 24 MC403/ 230	t ¹⁾	s	15						20		30		40					
			10*						15*		20*		25*					
	Δp _s	kPa	4000		4000	4000	3700	2400	1500	950	650	400	200	130				
MC503/ 24 MC503/ 230	t ¹⁾	s	100						150		250		300					
			50*						75*		125*		150*					
	Δp _s	kPa	4000		4000	4000	4000	3150	1950	1250	880	540	290	190				
MC1003/ 24	t	s								30	50		60			80		
MC1003/ 230	Δp _s	kPa								2150	1500	950	500	350	200	100		
MC1503/ 24	t	s											120			160		
MC1503/ 230	Δp _s	kPa											950	700	370	220	150	

100 kPa = 1 bar = 10 mWS
Δp_s: Closing pressure

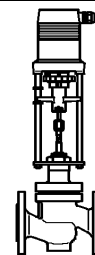
¹⁾ Actuating time freely adjustable, presetting is marked with *
^{s)} Special-kvs-value

Control valves with electric actuators up to 350°C

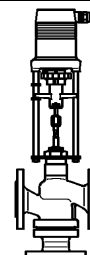
PN 16-40 **2.3.1**

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E

PN 40 BR340S / BR340E

DN			125	150	200	250	300
kvs-value m³/h			250	400	630	1000	1600
			200	315	500	800	1250
			160 ^s	250 ^s	400 ^s	630	1000
			125 ^s	200 ^s	315 ^s	500	800
Stroke mm			60		80	90	
M300/ M300Y 20 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1400	980	540	340	240
M300/ M300Y 25 kN	t ¹⁾	s	155		205	225	
			80		105	120	
	Δp _s	kPa	1800	1250	690	440	300

100 kPa = 1 bar = 10 mWS

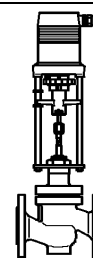
Δp_s: Closing pressure

¹⁾ Please state when ordering

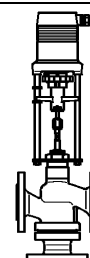
^{s)} Special-kvs-value

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN

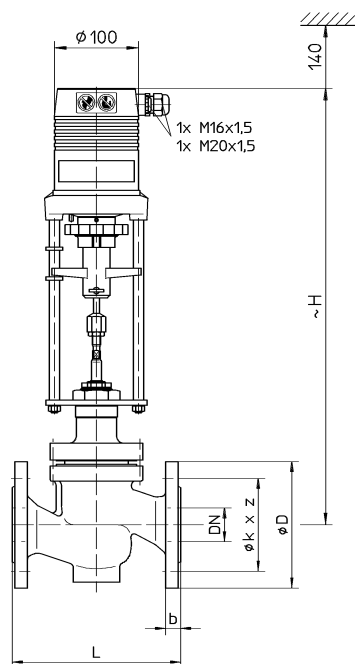


BR216
BR225
BR240S
BR240E

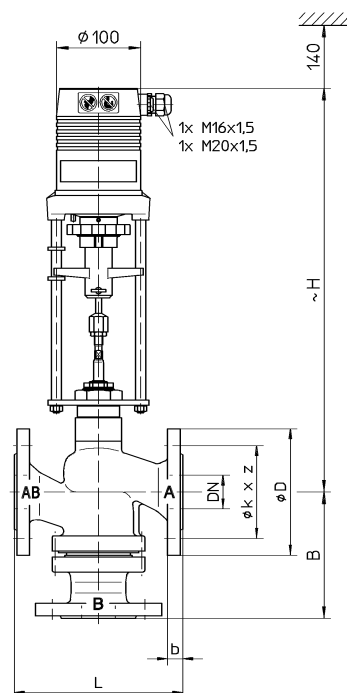


BR316
BR325
BR340S
BR340E

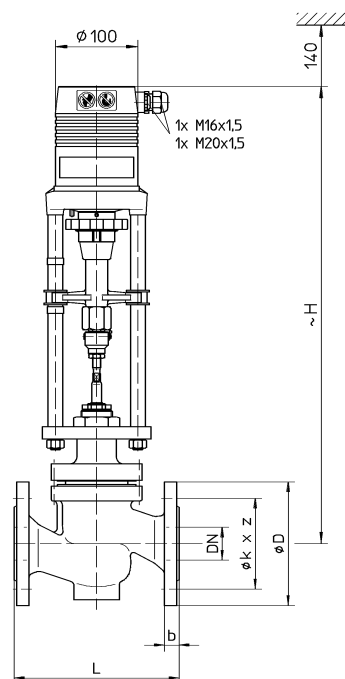
Drawing



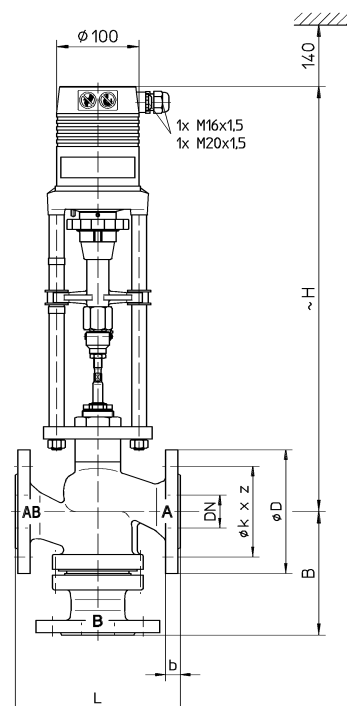
BR2... MC103



BR3... MC103



BR2... MC163



BR3... MC163

01/06/2009 Data subject to change without notice

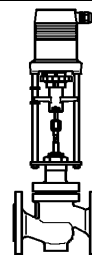
2.3.1 Phone +49 (0) 52 07 / 89 03 - 0
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Internet www.hora-ba.com

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Germany

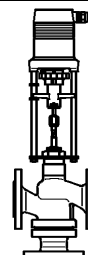
HORA
REGELARMATUREN
Excellence is our standard

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

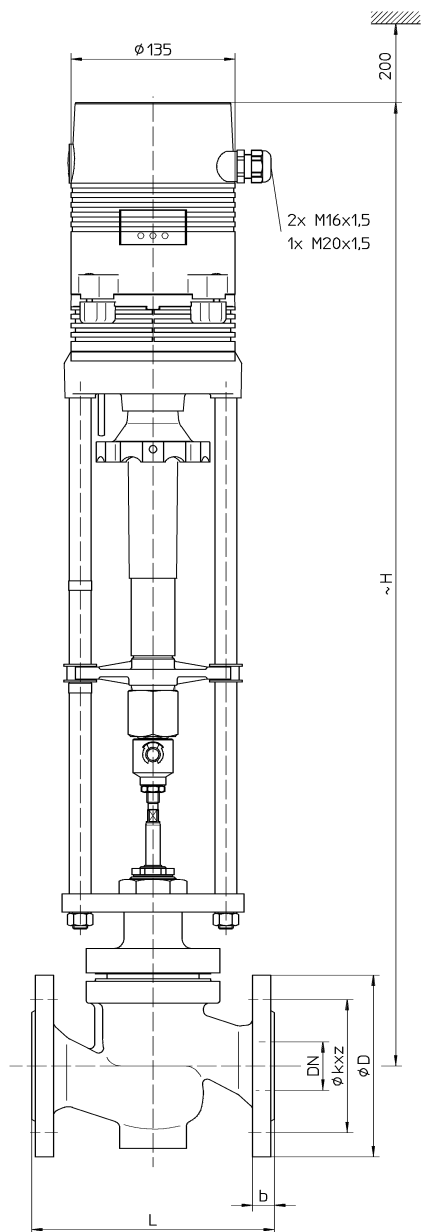
with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



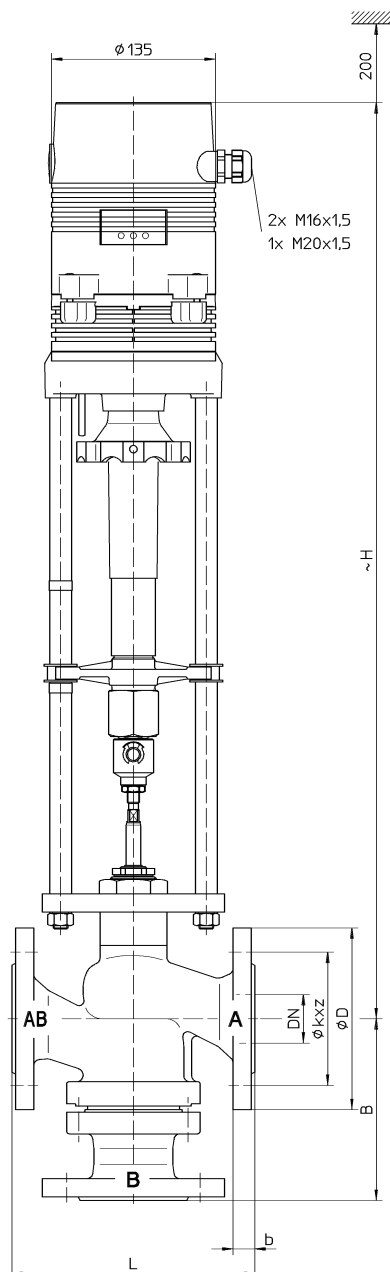
BR216
BR225
BR240S
BR240E



BR316
BR325
BR340S
BR340E



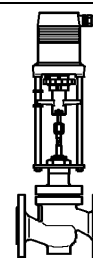
BR2... MC253
MC403
MC503
MC1003
MC1503



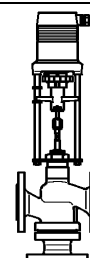
BR3... MC253
MC403
MC503
MC1003
MC1503

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

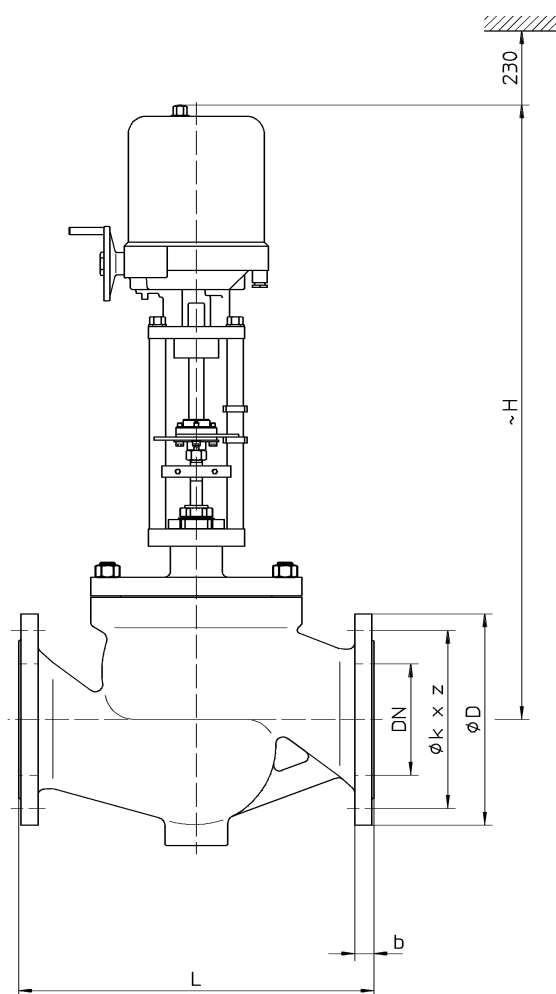
with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



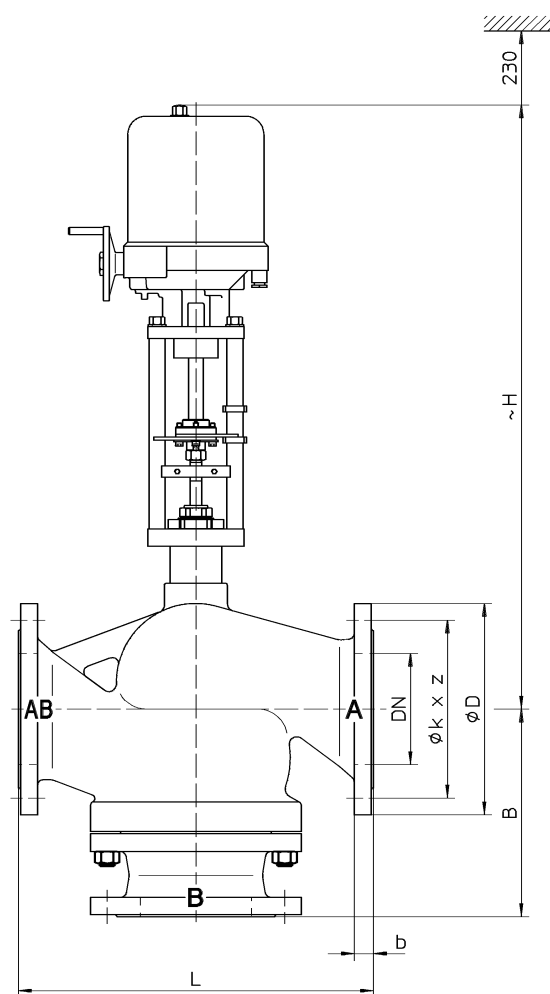
**BR216
BR225
BR240S
BR240E**



**BR316
BR325
BR340S
BR340E**



BR2... M300(Y)



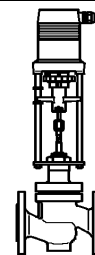
BR3... M300(Y)

Installation instruction:

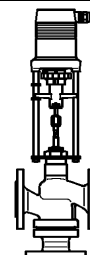
Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



**BR216
BR225
BR240S
BR240E**



**BR316
BR325
BR340S
BR340E**

Dimension

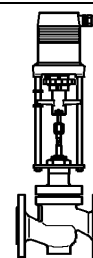
BR216/BR316 and BR225/BR325

DN		15	20	25	32	40	50	65	80	100	125	150	200 ¹⁾	250 ¹⁾	300 ¹⁾
L	mm	130	150	160	180	200	230	290	310	350	400	480	600	730	850
B	mm	130	130	130	150	150	160	170	215	215	260	280	400	450	550
PN 16	Ø D	mm	95	105	115	140	150	165	185	200	220	250	285	340	405
	Ø k	mm	65	75	85	100	110	125	145	160	180	210	240	295	355
	z	mm	4x Ø14			4x Ø18				8x Ø18			8x Ø22	12x Ø22	12x Ø26
	b	mm	16	16	18	18	18	20	20	20	22	24	24	30	32
PN 25	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300		
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250		
	z	mm	4x Ø14			4x Ø18				8x Ø18	8x Ø22	8x Ø26			
	b	mm	16	16	18	18	18	20	20	20	22	24	24		
H	MC103 24 VAC	BR2...	mm	500	500	500	515	515							
		BR3...	mm	460	460	465	475	475							
	MC103 230 VAC	BR2...	mm	525	525	525	540	540							
		BR3...	mm	485	485	490	500	500							
	MC163 24 VAC	BR2...	mm	552	537	537	567	567	577	587					
		BR3...	mm	512	512	517	527	527	537	552					
	MC163 230 VAC	BR2...	mm	577	577	577	592	592	602	612					
		BR3...	mm	537	537	542	552	552	562	577					
	MC253	BR2...	mm	725	725	725	740	740	750	760	860	905			
		BR3...	mm	685	685	690	700	700	710	725	840	870			
	MC403	BR2...	mm	775	775	775	790	790	800	810	905	950	975	1000	
		BR3...	mm	735	735	740	750	750	760	775	885	915	920	940	
	MC503	BR2...	mm	725	725	725	740	740	750	760	860	905	930	955	
		BR3...	mm	685	685	690	700	700	710	725	840	870	875	895	
	MC1003	BR2...	mm						935	950	995	1020	1045	1150	1210
		BR3...	mm						900	930	960	965	985	1100	1155
	MC1503	BR2...	mm									1020	1045	1150	1210
		BR3...	mm									965	985	1100	1155
	M300(Y)	BR2...	mm									900	925	990	1045
		BR3...	mm									885	905	980	1030

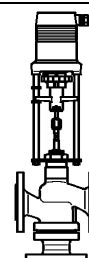
¹⁾ PN 16

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



**BR216
BR225
BR240S
BR240E**



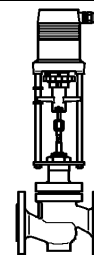
**BR316
BR325
BR340S
BR340E**

BR240S / BR340S and BR240E / BR340E

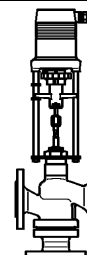
DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300	
L		mm	130	150	160	180	200	230	290	310	350	400	480	600	730	850	
B		mm	130	130	130	150	150	160	170	215	215	260	280	400	450	550	
PN 16	Ø D	mm	95	105	115	140	150	165	185	200	220	250	285	340	405	460	
	Ø k	mm	65	75	85	100	110	125	145	160	180	210	240	295	355	410	
	z	mm	4x Ø14			4x Ø18				8x Ø18			8x Ø22	12x Ø22	12x Ø26		
	b	mm	16	18	18	18	18	20	18	20	20	22	22	24	26	28	
PN 25	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300	360	425	485	
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250	310	370	430	
	z	mm	4x Ø14			4x Ø18			8x Ø18		8x Ø22	8x Ø26		12x Ø26	12x Ø30	16x Ø30	
	b	mm	16	18	18	18	18	20	22	24	24	26	28	30	32	34	
PN 40	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300	375	450	515	
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250	320	385	450	
	z	mm	4x Ø14			4x Ø18			8x Ø18		8x Ø22	8x Ø26		12x Ø30	12x Ø33	16x Ø33	
	b	mm	16	18	18	18	18	20	22	24	24	26	28	34	38	42	
H	MC103 24 VAC	BR2...	mm	500	500	500	515	515									
		BR3...	mm	460	460	465	475	475									
	MC103 230 VAC	BR2...	mm	525	525	525	540	540									
		BR3...	mm	485	485	490	500	500									
	MC163 24 VAC	BR2...	mm	552	537	537	567	567	577	587							
		BR3...	mm	512	512	517	527	527	537	552							
	MC163 230 VAC	BR2...	mm	577	577	577	592	592	602	612							
		BR3...	mm	537	537	542	552	552	562	577							
	MC253	BR2...	mm	725	725	725	740	740	750	760	860	905					
		BR3...	mm	685	685	690	700	700	710	725	840	870					
	MC403	BR2...	mm	775	775	775	790	800	800	810	905	950	975	1000			
		BR3...	mm	735	735	740	750	750	760	775	885	915	920	940			
	MC503	BR2...	mm	725	725	725	740	740	750	760	860	905	930	955			
		BR3...	mm	685	685	690	700	700	710	725	840	870	875	895			
	MC1003	BR2...	mm							935	950	995	1020	1045	1150	1210	
		BR3...	mm							900	930	960	965	985	1100	1155	
MC1503	BR2...	mm										1020	1045	1150	1210	1270	
	BR3...	mm										965	985	1100	1155	1210	
M300(Y)	BR2...	mm										900	925	990	1045	1105	
	BR3...	mm										885	905	980	1030	1085	

Flanged connection
PN 16 – 40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with electric actuators
MC103/24 • MC103/230
MC163/24 • MC163/230
MC253/24 • MC253/230
MC403/24 • MC403/230
MC503/24 • MC503/230
MC1003/24 • MC1003/230
MC1503/24 • MC1503/230
M300-20kN • M300Y-20kN
M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



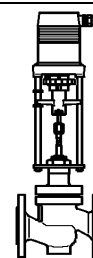
BR316
BR325
BR340S
BR340E

Weight

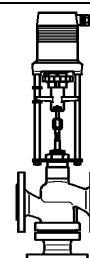
PN 16 / PN 25

DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300
m	MC103	BR2...	kg	6.5	8.5	9.5	10.5	13.5								
		BR3...	kg	7.5	8.5	10.5	12.5	14.5								
	MC163	BR2...	kg	8	10	11	12	15	17	21						
		BR3...	kg	9	10	12	14	16	20	24						
	MC253 24 VAC	BR2...	kg	11.4	13.4	14.4	15.4	18.4	20.4	24.4	37.4	49.4				
		BR3...	kg	12.4	14.4	15.4	17.4	19.4	23.4	27.4	41.4	52.4				
	MC253 230 VAC	BR2...	kg	12.6	14.6	15.6	16.6	19.6	21.6	25.6	38.6	50.6				
		BR3...	kg	13.6	15.6	16.6	18.6	20.6	24.6	28.6	42.6	53.6				
	MC403	BR2...	kg	13.5	15.5	16.5	17.5	20.5	22.5	26.5	39.5	51.5	70.5	102.5		
		BR3...	kg	14.5	16.5	17.5	19.5	21.5	25.5	29.5	43.5	54.5	82.5	113.5		
	MC503 24 VAC	BR2...	kg	11.4	13.4	14.4	15.4	18.4	20.4	24.4	37.4	49.4	68.4	100.4		
		BR3...	kg	12.4	14.4	15.4	17.4	19.4	23.4	27.4	41.4	52.4	80.4	111.4		
	MC503 230 VAC	BR2...	kg	12.6	14.6	15.6	16.6	19.6	21.6	25.6	38.6	50.6	69.6	101.6		
		BR3...	kg	13.6	15.6	16.6	18.6	20.6	24.6	28.6	42.6	53.6	81.6	112.6		
	MC1003	BR2...	kg						28.5	41.5	53.5	72.5	104.5	241.5	301.5	
		BR3...	kg						31.5	45.5	56.5	84.5	115.5	281.5	346.5	
	MC1503	BR2...	kg									72.5	104.5	241.5	301.5	391.5
		BR3...	kg									84.5	115.5	281.5	346.5	451.5
	M300(Y)	BR2...	kg									83	115	252	312	402
		BR3...	kg									95	126	292	357	462

Flanged connection	with electric actuators
PN 16 – 40	MC103/24 • MC103/230
Cast iron	MC163/24 • MC163/230
Spheroidal graphite	MC253/24 • MC253/230
Cast steel	MC403/24 • MC403/230
Stainless steel	MC503/24 • MC503/230
	MC1003/24 • MC1003/230
	MC1503/24 • MC1503/230
	M300-20kN • M300Y-20kN
	M300-25kN • M300Y-25kN



BR216
BR225
BR240S
BR240E



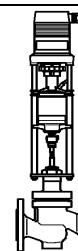
BR316
BR325
BR340S
BR340E

PN 40

DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300
m	MC103	BR2...	kg	9.5	10.5	12.5	15.5	16.5								
		BR3...	kg	10.5	11.5	13.5	18.5	19.5								
	MC163	BR2...	kg	11	12	14	17	18	23	31						
		BR3...	kg	12	13	15	20	21	26	37						
	MC253 24 VAC	BR2...	kg	14.4	15.4	17.4	20.4	21.4	26.4	37.4	45.4	60.4				
		BR3...	kg	15.4	16.4	18.4	23.4	24.4	29.4	40.4	52.4	65.4				
	MC253 230 VAC	BR2...	kg	15.6	16.6	18.6	21.6	22.6	27.6	35.6	46.6	61.6				
		BR3...	kg	16.6	17.6	19.6	24.6	25.6	30.6	41.6	53.6	66.6				
	MC403	BR2...	kg	16.5	17.5	19.5	22.5	23.5	28.5	39.5	47.5	62.5	76.5	111.5		
		BR3...	kg	17.5	18.5	20.5	25.5	26.5	31.5	42.5	54.5	67.5	88.5	130.5		
	MC503 24 VAC	BR2...	kg	14.4	15.4	17.4	20.4	21.4	26.4	37.4	45.4	60.4	74.4	109.4		
		BR3...	kg	15.4	16.4	18.4	23.4	24.4	29.4	40.4	52.4	65.4	86.4	128.4		
	MC503 230 VAC	BR2...	kg	15.6	16.6	18.6	21.6	22.6	27.6	35.6	46.6	61.6	75.6	110.6		
		BR3...	kg	16.6	17.6	19.6	24.6	25.6	30.6	41.6	53.6	66.6	87.6	129.6		
	MC1003	BR2...	kg						41.5	49.5	64.5	78.5	113.5	271.5	366.5	
		BR3...	kg						44.5	56.5	69.5	90.5	132.5	311.5	426.5	
	MC1503	BR2...	kg									78.5	113.5	271.5	366.5	471.5
		BR3...	kg									90.5	132.5	311.5	426.5	551.5
	M300(Y)	BR2...	kg									89	124	282	377	482
		BR3...	kg									101	143	322	437	562

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Features

- Control valves with fail-safe function in HVAC systems and industrial plants (district heating) for water, condensate and steam 0...+200°C
- For controlling temperature of district heating plants, cooling coils, steam humidifiers etc., with automatic closing or opening on power failure or safety contact.
- actuator with electrical manual override operation
- Microprocessor controlled with automatic self-calibration on start up

Technical data valve

Series	BR225/240S/240E			
Form	Two-way			
Diameter nominal	DN 15 – DN 100			
Pressure rating	PN 16	PN 25	PN 40	PN 40
Body	Spheroidal graphite		EN-JS1024	Cast steel 1.0619+N Stainless steel 1.4408
Plug			CrNi-steel 1.4057	CrNi-steel 1.4571
Stem			CrMo-steel 1.4122	CrNi-steel 1.4571
Characteristics	$\leq$ DN 50: equal % $\geq$ DN 65: equal % mod.			
Stroke mm	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 40 (DN 80 – DN 100)			
Rangeability	$\geq 100:1$			
Connection type	Flanges acc. EN 1092-2 type 21			Flanges acc. EN 1092-1 type 21
Pressure, Temp.	Acc. EN 1092 part 2			Acc. EN 1092 part 1

Series	BR225/240S/240E with balanced plug			
Form	Two-way			
Diameter nominal	DN 32 – DN 100			
Pressure rating	PN 16	PN 25	PN 40	PN 40
Body	Spheroidal graphite		EN-JS1024	Cast steel 1.0619+N Stainless steel 1.4408
Plug			CrNi-steel 1.4057	CrNi-steel 1.4571
Stem			CrMo-steel 1.4122	CrNi-steel 1.4571
Characteristics	$\leq$ DN 50: equal % $\geq$ DN 65: equal % mod.			
Stroke mm	20 (DN 32 – DN 40) 30 (DN 50 – DN 65) 40 (DN 80 – DN 100)			
Rangeability	$\geq 100:1$			
Connection type	Flanges acc. EN 1092-2 Typ 21			Flanges acc. EN 1092-1 Typ 21
Pressure, temp.	Acc. EN 1092 Teil 2			Acc. EN 1092 Teil 1

2.4.1
1/10

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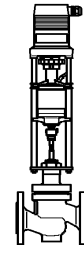
Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Excellence is our standard

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Face to face dimension: acc. EN 558-1 basic series 1

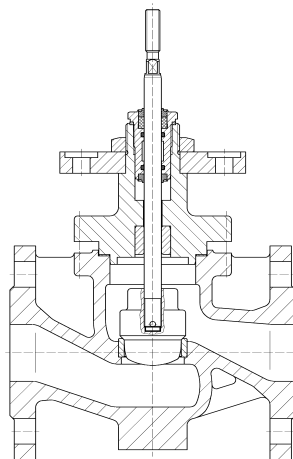
Leakage rate: acc. EN 1349 – seat leakage IV L1 ($\leq 0,01\%$ of kvs-value)

Stem sealing: O-Ring made of EPDM 0...+180°C chilled and hot-water
O-Ring made of Fluoraz® 0...+200°C chilled and hot-water, condensate and steam

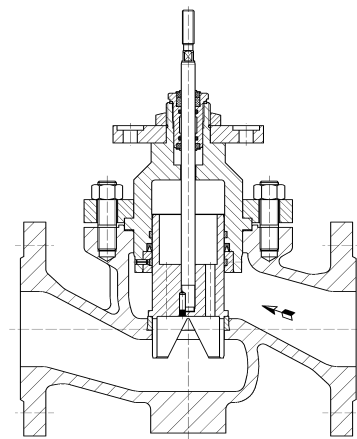
Valve variant and accessories

- Housing connecting flanges with groove acc. to EN 1092-1 type D,
with socket acc. to EN 1092-1 type F,
with spigot acc. to EN 1092-1 type E
- Screwed seat: for valves made of spheroidal graphite and cast steel made of 1.4122,
unhardened or hardened
for valves made of stainless steel made of 1.4571
- Perforated plug: for valves made of spheroidal graphite and cast steel made of 1.4057,
unhardened or hardened
for valves made of stainless steel made of 1.4571
- Body and plug seat grounded in, EN 1349 – seat-leakage IV-S1 L1 ($\leq 0.0005\%$ of kvs-value)
- Plug with soft sealing made of NBR, EPDM, PTFE; EN 1349 – seat-leakage VI G1 (tight sealing)
- technical silicon free version, max. 180°C
- Balanced plug, max. operating temperature 200°C

Drawing



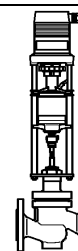
BR225/240S/240E



BR225/240S/240E with balanced plug

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Technical data MC103SE

Type		MC103SE/24	MC103SE/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Fail-safe time	s/mm	approx 0.1	approx 0.1
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 25	max. 20
Input signal ²⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Fail-safe function: stem extended on power failure (TÜV-tested)

Resolution: electric 0.04 VDC
mechanical 0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 5.0 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ⁴⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Board for output signal X=0(4)...20 mA ⁴⁾
- Adapter with coupling for external products

¹⁾ Actuating time freely adjustable, presetting is marked with *

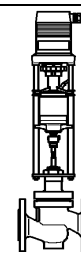
²⁾ Invertible input and output signal

³⁾ Freely adjustable

⁴⁾ Position switch unit and output signal not in combination

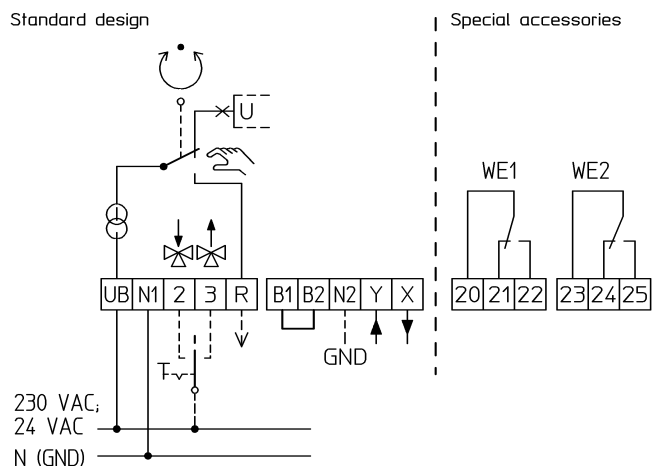
Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



BR225
BR240S
BR240E

Circuit diagram



R Feedback signal in „Manual“ mode of operation

R=24 VAC max.100 mA for actuators in 24 VAC design

R=24 VDC max. 35 mA for actuators in 230 VAC design, resistance of load > 480 Ohm

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost protection)

Technical data actuator M2.2(Y) – M2.3(Y)

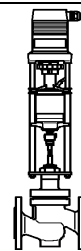
Type		M2.2	M2.2Y
Actuating time at 50 Hz	s/mm	3	3
Fail-safe time	s/mm	0.3	0.3
Actuating thrust	kN	2.2	2.2
Stroke	mm	max. 30	max. 30
Power supply	VAC	230 +6% -10%	24 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	24	24
Input signal ²⁾		3-point	0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm
Output signal		-	0(2)...10 VDC max. 10 mA 0(4)...20 mA ¹⁾ min. 1200 Ohm

¹⁾ Please state when ordering

²⁾ Invertible input signal

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Type		M2.3	M2.3Y
Actuating time 50 Hz	s/mm	3	3
Fail-safe time	s/mm	0.3	0.3
Actuating thrust	kN	2.2	2.2
Stroke	mm	max. 46	max. 46
Power supply	VAC	230 +6% -10%	24 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	24	24
Input signal ²⁾		3-point	0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm
Output signal		-	0(2)...10 VDC max. 10 mA 0(4)...20 mA ¹⁾ min. 1200 Ohm

Enclosure protection:

IP 54

Fail-safe function:

M2.2(Y) / M2.3(Y)
M2.2(Y)-R / M2.3(Y)-R

stem extended on power failure (TÜV-tested)
stem retracted on power failure (TÜV-tested)

Operating mode:

S1-100% ED c/h 1200 EN 60034-1

End position switch off:

travel dependent

Ambient temperature:

0...+50°C

Weight:

M2.2(Y) 9 kg
M2.3(Y) 10 kg

Actuator variant accessories

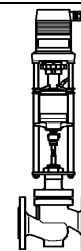
- Potentiometer: 0.2 / 1.0 / 10.0 kOhm 1,5 VA
- Position switch unit: 2 Switches (WE1/WE2), potential free, infinitely adjustable
Rated load: max. 10 A / 125 - 250 VAC
- Voltage: 24 VAC

¹⁾ Please state when ordering

²⁾ Invertible input signal

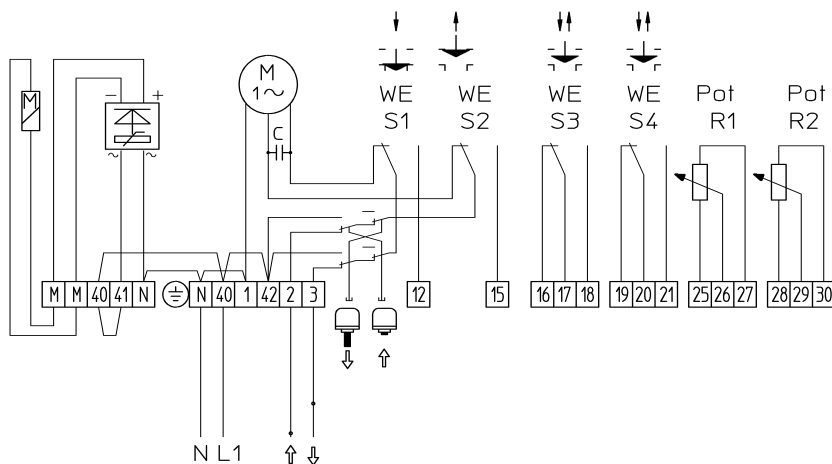
Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y

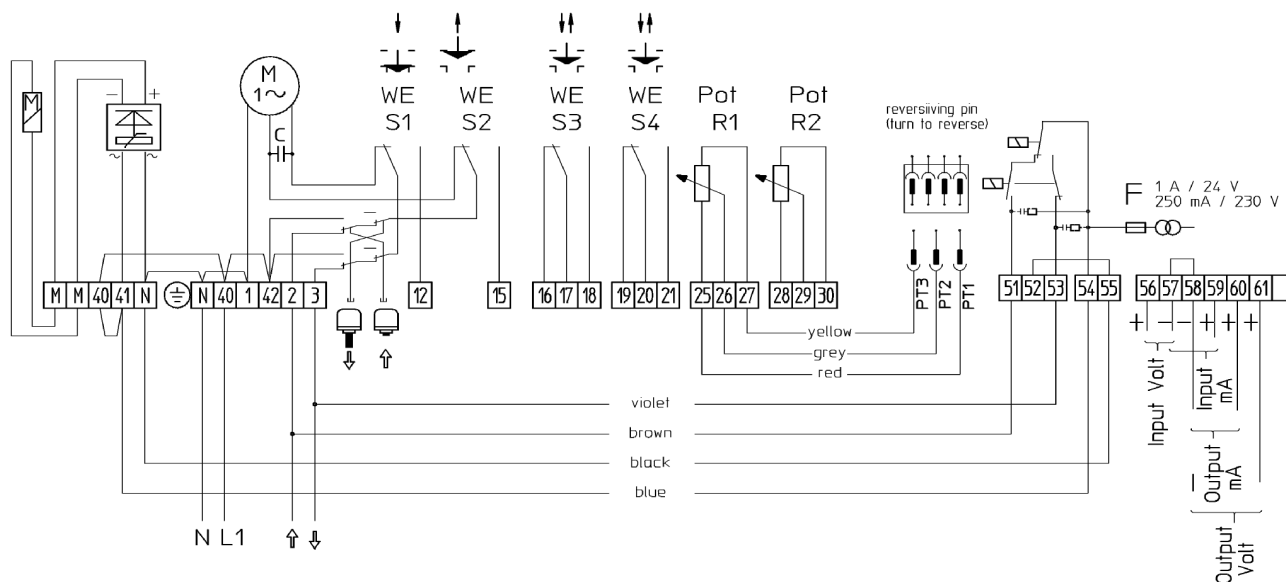


**BR225
BR240S
BR240E**

Circuit diagram M2.2/M 2.3

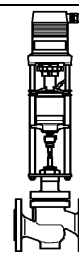


Circuit diagram M2.2Y/M2.3Y



Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Technical data valve with actuator

DN		15		20	25	32	40	50	65 ¹⁾	80	100 ¹⁾
kvs-value	m³/h	4 ^L	2.5	6.3 ^L	10	16	25	40	63	100	160
			1.6	5 ^{S/L}	8 ^{S/L}	12.5 ^S	20 ^S	31.5 ^S	50 ^S		
			1.25	4 ^L	6.3 ^L	10 ^L	16 ^L	25 ^L	40 ^L		
			1.0	2.5 ^{S/L}	5 ^{S/L}	8 ^{S/L}	12.5 ^{S/L}	20 ^{S/L}	31.5 ^{S/L}		
			0.63								
			0.4								
			0.25								
			0.16								
Stroke		mm		20				30		40	
MC103SE/ 24 MC103SE/ 230	Actuating time	s	120								
			80*								
	Fail-safe time	s	~ 2								
			Closing pressure	kPa	1250	3500	1250	1050	600	350	
M2.2 M2.2Y	Actuating time	s	60				90				
	Fail-safe time	s	~ 6				~ 9				
	Closing pressure	kPa	3250	4000	3250	2750	1650	1050	680	450	
M2.3 M2.3Y	Actuating time	s							120		
	Fail-safe time	s							~ 12		
	Closing pressure	kPa							300	190	
MC103SE/ 24 MC103SE/ 230	Actuating time	s	Valves with balanced plug			120					
						80*					
						~ 2					
						Closing pressure	kPa	1800	1600		
M2.2 M2.2Y	Actuating time	s	Valves with balanced plug			60		90			
	Fail-safe time	s				~ 6		~ 9			
	Closing pressure	kPa				4000	4000	4000	4000		
M2.3 M2.3Y	Actuating time	s	Valves with balanced plug							120	
	Fail-safe time	s								~ 12	
	Closing pressure	kPa								3500	400

100 kPa = 1 bar = 10 mWS

The closing pressure is limited by the nominal pressure

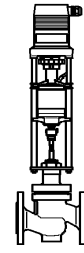
¹⁾ PN 16 or PN25-40

^{L)} Available with perforated plug

^{S)} Special kvs-value

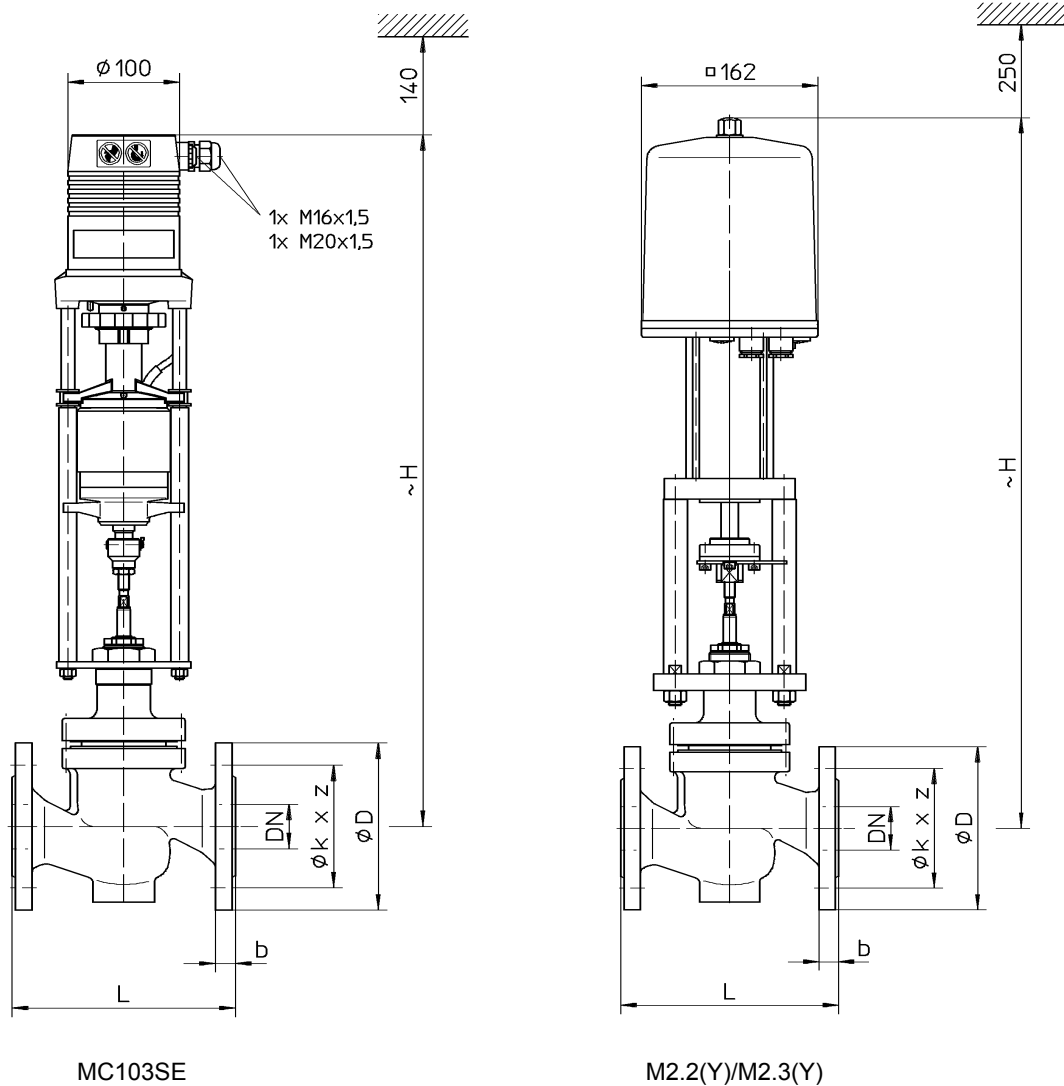
Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Drawing



Installation instruction:

Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



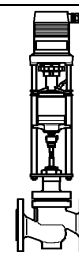
**BR225
BR240S
BR240E**

Dimension

DN		15	20	25	32	40	50	65	80	100
L	mm	130	150	160	180	200	230	290	310	350
PN 16	Ø D	mm	95	105	115	140	150	165	200	220
	Ø k	mm	65	75	85	100	110	125	145	160
	z	mm	4x Ø14			4x Ø18			8x Ø18	
	b	mm	16	16	18	18	18	20	20	22
PN 25 PN 40	Ø D	mm	95	105	115	140	150	165	200	235
	Ø k	mm	65	75	85	100	110	125	145	160
	z	mm	4x Ø14			4x Ø18			8x Ø18	4x Ø22
	b (Spheroidal graph.)	mm	16	16	18	18	18	20	20	22
	b (Cast steel / stainless steel)	mm	16	18	18	18	18	20	22	24
H	MC103 SE/24	mm	604	604	604	616	616			
	MC103 SE/230	mm	629	629	629	641	641			
	M2.2	mm	641	641	641	653	653	663	674	
	M2.2Y	mm	678	678	678	690	690	700	711	
	M2.3	mm							729	775
	M2.3Y	mm							766	812
	MC103 SE/24 balanced plug	mm				639	639			
	MC103 SE/230 balanced plug	mm				664	664			
	M2.2 balanced plug	mm				676	676	689	690	
	M2.2Y balanced plug	mm				713	713	726	727	
	M2.3 balanced plug	mm							794	791
	M2.3Y balanced plug	mm							831	828

Flanged connection
PN 16 – 40
Spheroidal graphite
Cast steel
Stainless steel

With electric actuators with fail-safe function
MC103SE/24 • MC103SE/230
M2.2 • M2.2Y
M2.3 • M2.3Y



**BR225
BR240S
BR240E**

Weight

PN16 / PN25

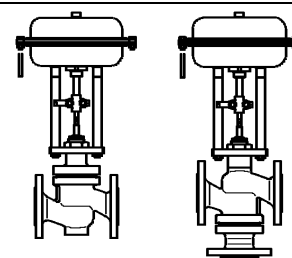
DN			15	20	25	32	40	50	65	80	100
m	MC103SE	kg	10	12	13	14	17				
	M2.2(Y)	kg	14	16	17	18	21	22	26		
	M2.3(Y)	kg								40	52
	MC103SE balanced plug	kg				15	18				
	M2.2(Y) balanced plug	kg				19	22	23	27		
	M2.3(Y) balanced plug	kg								43	56

PN40

DN			15	20	25	32	40	50	65	80	100
	MC103SE	kg	13	14	16	19	20				
	M2.2(Y)	kg	17	18	20	23	24	29	37		
	M2.3(Y)	kg								38	63
	MC103SE balanced plug	kg				20	21				
	M2.2(Y) balanced plug	kg				24	25	30	38		
	M2.3(Y) balanced plug	kg								51	67

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Features

- Suitable in building and process engineering for various mediums 0...+200°C
- Suitable with stuffing box extension or stem seal with stainless steel bellow to -10...+350°C and for valves made of stainless steel to -30...+350°C
- Suitable with stem heater for water with antifreeze compounds down to -10°C and for valves made of stainless steel to -30°C
- Actuators with high thrust and short actuation time
- Mode of operation: spring opens / air closes or opens

Technical data valve

Series	BR216	BR225	BR240S	BR240E
Form	Two-way			
Diameter nominal	DN 125 – DN 300	DN 15 – DN 200 ¹⁾	DN 15 – DN 300	
Pressure rating	PN 16	PN 16 / PN 25 / PN 40	PN 40	
Body	Cast iron EN-JL1040	Spheroidal graphite EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug	CrNi-steel 1.4057			CrNi-steel 1.4571
Stem	CrMo-steel 1.4122			CrNi-steel 1.4571
Characteristic	≤ DN 50: equal % Option: linear ≥ DN 65: eq. % mod. Option: linear Perforated plug: equal % Option: linear			
Stroke mm	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 50 (DN 80 – DN 100) 60 (DN 125 – DN 200) 80 (DN 250 – DN 300)			
Rangeability	≥ 50:1			
Connection type	Flanges acc. EN 1092-2 Typ 21		Flanges acc. EN 1092-1 Typ 21	
Pressure, Temp.	Acc. EN 1092 part 2		Acc. EN 1092 part 1	

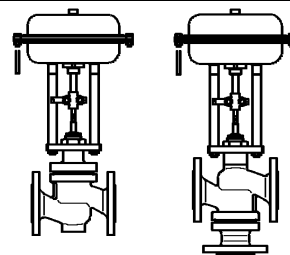
¹⁾ DN 150: PN 16 or PN 25
DN 200: PN 16

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Series	BR316	BR325	BR340S	BR340E
Form	Three-way			
Diameter nominal	DN 125 – DN 300	DN 15 – DN 200 ¹⁾	DN 15 – DN 300	
Pressure rating	PN 16	PN 25	PN 40	
Body	Cast iron ²⁾ EN-JL1040	Spheroidal graphite EN-JS1024	Cast steel 1.0619+N	Stainless steel 1.4408
Plug	CrNi-steel 1.4057			CrNi-steel 1.4571
Stem	CrMo-steel 1.4122			CrNi-steel 1.4571
Characteristic	≤ DN 40: A→AB equal % Option: linear B→AB linear ≥ DN 50: A→AB eq. % mod. Option: linear B→AB linear			
Stroke mm	20 (DN 15 – DN 40) 30 (DN 50 – DN 65) 50 (DN 80 – DN 100) 60 (DN 125 – DN 200) 80 (DN 250 – DN 300)			
Rangeability	≥ 50:1			
Connection type	Flanges acc. EN 1092-2 Typ 21		Flanges acc. EN 1092-1 Typ 21	
Pressure, Temp.	Acc. EN 1092 part 2		Acc. EN 1092 part 1	

Function: BR216/225/240S/240E as two-way valve
BR316/325/340S/340E as mixing valve or
BR316/325/340S/340E as diverting valve with reduced closing pressure

Face to face dimension: Acc. EN 558-1 basic series 1

Leakage rate: EN 1349 – seat-leakage IV L1 (≤ 0.01% of kvs-value)

Stem sealing: O-rings made of EPDM 0...+180°C chilled and hot-water with max. 50% antifreeze and anti-corrosive compounds: glycol, ethylene glycol, mono ethylene, ethanol, methyl alcohol, glycerine, antifrogen® N+L
O-rings made of FKM 0...+200°C media based on mineral oil
O-rings made of Fluoraz® 0...+200°C hot water, steam, oil, acids and lye
Graphite-Packing 0...+350°C ³⁾ hot water, steam, oil, acids and lye

¹⁾ DN 150: PN 16 or PN 25

DN 200: PN 16

²⁾ Due to a change in material, we reserve the right to supply valves up to DN 100 in higher grade spheroidal graphite EN-JS1024

³⁾ only in combination with stuffing box extension or stem seal with stainless steel bellow

3.1.1

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Internet www.hora-ba.com

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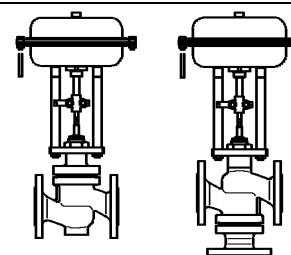
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Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Excellence is our standard

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Valve variant and accessories

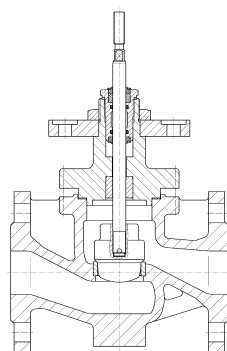
for two-way and three-way valves:

- Housing connecting flanges: with groove acc. to EN 1092-1 type D,
with socket acc. to EN 1092-1 type F,
with spigot acc. to EN 1092-1 type E
- Body and plug seat grounded in, EN 1349 – seat-leakage IV-S1 L1 ($\leq 0.0005\%$ of kvs-value)
- Plug with soft sealing made of NBR, EPDM, PTFE; EN 1349 – seat-leakage VI G1 (tight sealing)
- Stem heater: 24 VAC, 50 Hz
 $P_{max.} \approx 200 \text{ VA} / P_N \approx 45 \text{ VA}$
S1 100% ED, IP 54
- Transformer for stem heater: 230/24 VAC, 50 Hz
- Stem seal with stainless steel bellow: for valves made of cast iron $-10^\circ\text{C} \dots +200^\circ\text{C}$
for valves made of spheroidal graphite and cast steel $-10^\circ\text{C} \dots +350^\circ\text{C}$
for valves made of stainless steel $-30^\circ\text{C} \dots +350^\circ\text{C}$
Stuffing box made of graphite
Stuffing box made of graphite
- Stuffing box extension: 100 mm
for valves made of spheroidal graphite and cast steel $-10^\circ\text{C} \dots +350^\circ\text{C}$
for valves made of stainless steel $-30^\circ\text{C} \dots +350^\circ\text{C}$
- Epoxy resin special varnish as a corrosion resistant in case of condensed water, max. $80^\circ\text{C}^{1)}$
- technical silicon free version, max. 180°C
- oil and fat free for oxygen application

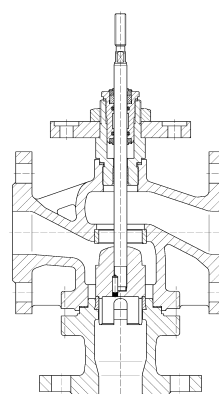
only for two-way valves:

- Screwed seat: for valves made of cast iron, spheroidal graphite and cast steel made of 1.4122, unhardened or hardened
for valves made of stainless steel made of 1.4571
- Perforated plug: for valves made of cast iron, spheroidal graphite and cast steel made of 1.4057, unhardened or hardened
for valves made of stainless steel made of 1.4571
- Housing seat SKWAM plated or Stellite 6 plated²⁾
- Balanced plug, max. operating temperature 200°C

Schnittzeichnung



BR216/225/240S/240E



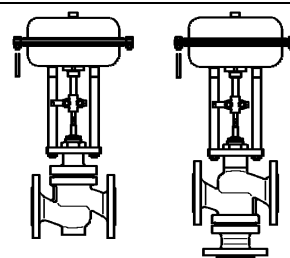
BR316/325/340S/340E

¹⁾ except valves made of stainless steel

²⁾ only for valves made of spheroidal graphite and stainless steel

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Technical data actuator PA-N160 – PA-N2160

Type		PA-N160	PA-N300		PA-N540			PA-N1080			PA-N2160		
Diaphragm area	cm ²	160	300		540			1080			2160		
Operating pressure, max.	bar	6	6		6			6			6		
Spring range	bar	1.8 – 3.0	1.6-2.4	1.6-2.8	1.7-2.7	1.7-3.3	1.7-3.7	1.5-2.4	1.5-2.7	1.5-3.0	1.5-2.4	1.5-2.7	1.5-3.0
Spring force	kN	2.8	5	5	9	9	9	16	16	16	32	32	32
Stroke	mm	20	20	30	30	50	60	60	80	100	60	80	100
Volume	ltr.	0.5	1.0	1.3	3.7	4.8	5.3	9.9	12.5	14.2	19.8	25.4	28.5
Stroke volume	ltr.	0.3	0.6	0.8	2.2	3.2	3.8	6.5	8.7	10.8	12.9	17.4	21.6
Air connection		NPT ¼	NPT ¼		NPT ½			NPT ¾			NPT ¾		
Weight without handwheel	kg	6	13		43			120			202		
Weight with handwheel	kg	9	16		62			144			235		

Ambient temperature: -40...+80°C

Operating mode: alternatively spring closes / opens

Actuator variant and accessories

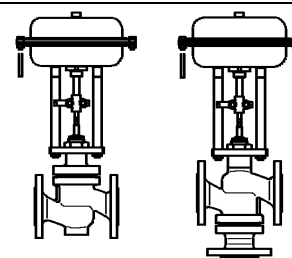
- Manual operating device
 - Positioner
 - pneumatic with manometer Type EIP 300
 - pneumatic without manometer Type 2750
 - electro-pneumatic without manometer Type 2750E
 - electro-pneumatic with manometer Type SIPART-PS 2
 - electro-pneumatic with manometer Type SIPART-PS 2-Ex
 - electro-pneumatic with manometer Type SIPART-PS 2
 - electro-pneumatic with manometer Type SIPART-PS 2-Ex
 - Air filter, G ¼
 - Air filter, G ½
 - Blocking valve
 - Booster
 - G ¼
 - G ¾
 - G ¾
 - G ¾ or G ½
 - Solenoid valve
 - 3/2 Way, 230 VAC, 50 Hz
 - Solenoid valve
 - 3/2 Way, 230 VAC or 24 VDC, 50 Hz
 - Quick venting screw
 - Throttle
 - G ½
 - G ¼
 - G ½
 - Limit switches
 - Type 4050306
 - Type ID 106123
 - Type ID 106124
 - Type 3 SE 2120-1E
- Input signal 4...20 mA
Input signal 4...20 mA
Input signal 4...20 mA
Input / Output signal 4...20 mA
Input / Output signal 4...20 mA
1 or 2 pieces

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Technical data valve with actuator

PN 16 BR216

SR210

DN			125	150	200	250	300
kvs-value m³/h			250	400	630	1000	1250
			200 ^S	315 ^S	500 ^S	800	1000
			160	250	400	630	800
			125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	500 ^L	630 ^L
Stroke mm			60			80	
PA-N 1080	Spring range/ Operating pressure	bar	1.5-2.4/6			1.5-2.7/6	
	Δp _s	kPa	1000	700	400	220	150
PA-N 2160	Spring range/ Operating pressure	bar	1.5-2.4/6			1.5-2.7/6	
	Δp _s	kPa	1600	1500	850	400	300

100 kPa = 1 bar = 10 mWS
Δp_s: Closing pressure

PN 16 BR316

DN			125	150	200	250	300
kvs-value	m³/h		250	400	630	1000	1250
			200	315	500	800	1000
			160 ^S	250 ^S	400 ^S	630	800
			125 ^S	200 ^S	315 ^S	500	630
Stroke		mm	60			80	
PA-N 1080	Spring range/ Operating pressure	bar	1.5-2.4/6			1.5-2.7/6	
	Δp _s	kPa	1000	700	400	220	150
PA-N 2160	Spring range/ Operating pressure	bar	1.5-2.4/6			1.5-2.7/6	
	Δp _s	kPa	850			400	300

100 kPa = 1 bar = 10 mWS
Δp_s: Closing pressure

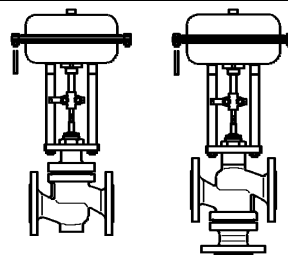
^{L)} Available with perforated plug
^{S)} Special-kvs-value

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR225

DN			15	15	20	25	32	40	50	65 ¹⁾	80	100 ¹⁾	125 ¹⁾	150 ²⁾	200 ³⁾	
kvs-value		m³/h	4 ^L 2.5 1.6 1.25 1.0 0.63 0.4 0.25 0.16	2.5 5 ^{S/L} 4 ^L 2.5 ^{S/L}	6.3 ^L 5 ^{S/L} 6.3 ^L 2.5 ^{S/L}	10 8 ^{S/L} 6.3 ^L 5 ^{S/L}	16 12.5 ^S 10 ^L 8 ^{S/L}	25 20 ^S 16 ^L 12.5 ^{S/L}	40 31.5 ^S 25 ^L 20 ^{S/L}	63 50 ^S 40 ^L 31.5 ^{S/L}	100 80 ^S 63 ^L 50 ^{S/L}	160 125 ^S 100 ^L 80 ^{S/L}	250 200 ^S 160 125 ^{S/L}	400 315 ^S 250 200 ^{S/L}	630 500 ^S 400 315 ^{S/L}	
Stroke			mm		20						30		50		60	
PA-N160	Spring range/ Operating pressure	bar	1.8-3.0/6													
	Δp _s	kPa	4000	4000	4000	3500	2200	1400								
PA-N300	Spring range/ Operating pressure	bar	1.6-2.4/6						1.6-2.8/6							
	Δp _s	kPa	4000	4000	4000	4000	3600	2300	1400	900						
PA-N540	Spring range/ Operating pressure	bar							1.7-2.7/6		1.7-3.3/6					
	Δp _s	kPa							3650	2750	1500	900				
PA-N1080	Spring range/ Operating pressure	bar										1.5-2.4/6				
	Δp _s	kPa										1000	700	400		
PA-N2160	Spring range/ Operating pressure	bar										1.5-2.4/6				
	Δp _s	kPa										2250	1550	850		

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ PN 16 or PN25-40

²⁾ PN 16 or PN25

³⁾ PN 16

^{L)} Available with perforated plug

^{S)} Special-kvs-value

3.1.1

6/14

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Germany



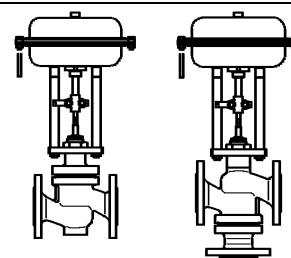
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Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

PN 16 / PN 25 / PN 40 BR325

DN			15	20	25	32	40	50	65 ¹⁾	80	100 ¹⁾	125 ¹⁾	150 ²⁾	200 ³⁾	
kvs-value			m³/h	4 2.5	6.3 5 4 ^s 2.5 ^s	10 8 6.3 ^s 5 ^s	16 12.5 10 ^s 8 ^s	25 20 16 ^s 12.5 ^s	40 31.5 25 ^s 20 ^s	63 50 40 ^s 31.5 ^s	100 80 63 ^s 50 ^s	160 125 100 ^s 80 ^s	250 200 160 ^s 125 ^s	400 315 250 ^s 200 ^s	630 500 400 ^s 315 ^s
Stroke			mm	20					30		50		60		
PA-N160	Spring range/ Operating pressure	bar	1.8-3.0/6												
	Δp _s	kPa	4000	4000	3500	2200	1400								
PA-N300	Spring range/ Operating pressure	bar	1.6-2.4/5					1.6-2.8/6							
	Δp _s	kPa	4000	4000	4000	3600	2300	1400	900						
PA-N540	Spring range/ Operating pressure	bar						1.7-2.7/6		1.7-3.3/6					
	Δp _s	kPa						3650	2750	1500	900				
PA-N1080	Spring range/ Operating pressure	bar											1.5-2.4/6		
	Δp _s	kPa											1000	700	400
PA-N2160	Spring range/ Operating pressure	bar													1.5- 2.4/6
	Δp _s	kPa													850

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

The closing pressure is limited by the nominal pressure.

¹⁾ PN 16 or PN25-40

²⁾ PN 16 or PN25

³⁾ PN 16

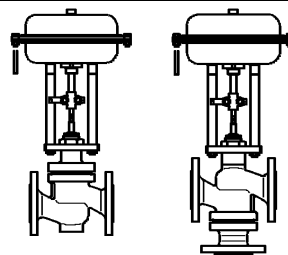
^{s)} Special-kvs-value

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

PN 40 BR240S / BR240E

DN			15	15	20	25	32	40	50	65	80	100	125	150	200	250	300			
kvs-value m³/h			4 ^L 2.5 1.6 1.25 1.0 0.63 0.4 0.25 0.16	2.5	6.3 ^L	10	16	25	40	63	100	160	250	400	630	1000	1250			
				5 ^{S/L}	8 ^{S/L}	12.5 ^S	20 ^S	31.5 ^S	50 ^S	80 ^S	125 ^S	200 ^S	315 ^S	500 ^S	800	1000				
				4 ^L	6.3 ^L	10 ^L	16 ^L	25 ^L	40 ^L	63 ^L	100 ^L	160	250	400	630	800				
				2.5 ^{S/L}	5 ^{S/L}	8 ^{S/L}	12.5 ^{S/L}	20 ^{S/L}	31.5 ^{S/L}	50 ^{S/L}	80 ^{S/L}	125 ^{S/L}	200 ^{S/L}	315 ^{S/L}	500 ^L	630 ^L				
				0.63																
				0.4																
				0.25																
				0.16																
Stroke mm			20						30		50		60			80				
PA-N 160	Spring range/ Operating pressure	bar	1.8-3.0/6																	
	Δp _s	kPa	4000	4000	4000	3500	2200	1400												
PA-N 300	Spring range/ Operating pressure	bar	1.6-2.4/6						1.6-2.8/6											
	Δp _s	kPa	4000	4000	4000	4000	3600	2300	1400	900										
PA-N 540	Spring range/ Operating pressure	bar							1.7-2.7/6		1.7-3.3/6									
	Δp _s	kPa							3650	2750	1500	900								
PA-N 1080	Spring range/ Operating pressure	bar										1.5-2.4/6			1.5-2.7/6					
	Δp _s	kPa										1000	700	400	220	150				
PA-N 2160	Spring range/ Operating pressure	bar										1.5-2.4/6			1.5-2.7/6					
	Δp _s	kPa										2250	1550	850	400	300				

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

^{L)} Available with perforated plug

^{S)} Special-kvs-value

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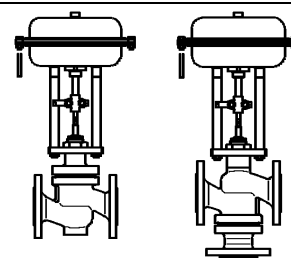
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PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
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PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

PN 40 R340S / BR340E

DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300				
kvs-value		m³/h	4 2.5	6.3 5 4 ^s 2.5 ^s	10 8 6.3 ^s 5 ^s	16 12.5 10 ^s 8 ^s	25 20 16 ^s 12.5 ^s	40 31.5 25 ^s 20 ^s	63 50 40 ^s 31.5 ^s	100 80 63 ^s 50 ^s	160 125 100 ^s 80 ^s	250 200 160 ^s 125 ^s	400 315 250 ^s 200 ^s	630 500 400 ^s 315 ^s	1000 800 630 500 400	1250 1000 800 630				
			Stroke					mm		20			30		50		60		80	
			PA-N 160	Spring range/ Operating pressure	bar	1.8-3.0/6														
				Δp _s	kPa	4000	4000	3500	2200	1400										
PA-N 300	Spring range/ Operating pressure	bar	1.6-2.4/6					1.6-2.8/6												
	Δp _s	kPa	4000	4000	4000	3600	2300	1400	900											
PA-N 540	Spring range/ Operating pressure	bar						1.7-2.7/6		1.7-3.3/6										
	Δp _s	kPa						3650	2750	1500	900									
PA-N 1080	Spring range/ Operating pressure	bar										1.5-2.4/6			1.5-2.7/6					
	Δp _s	kPa										1000	700	400	220	150				
PA-N 2160	Spring range/ Operating pressure	bar												1.5- 2.4/6	1.5-2.7/6					
	Δp _s	kPa												850	400	300				

100 kPa = 1 bar = 10 mWS

Δp_s: Closing pressure

^{s)} Special-kvs-value

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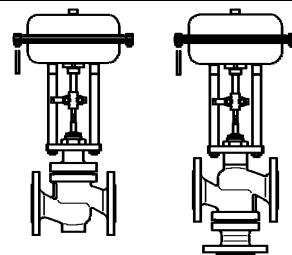
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PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

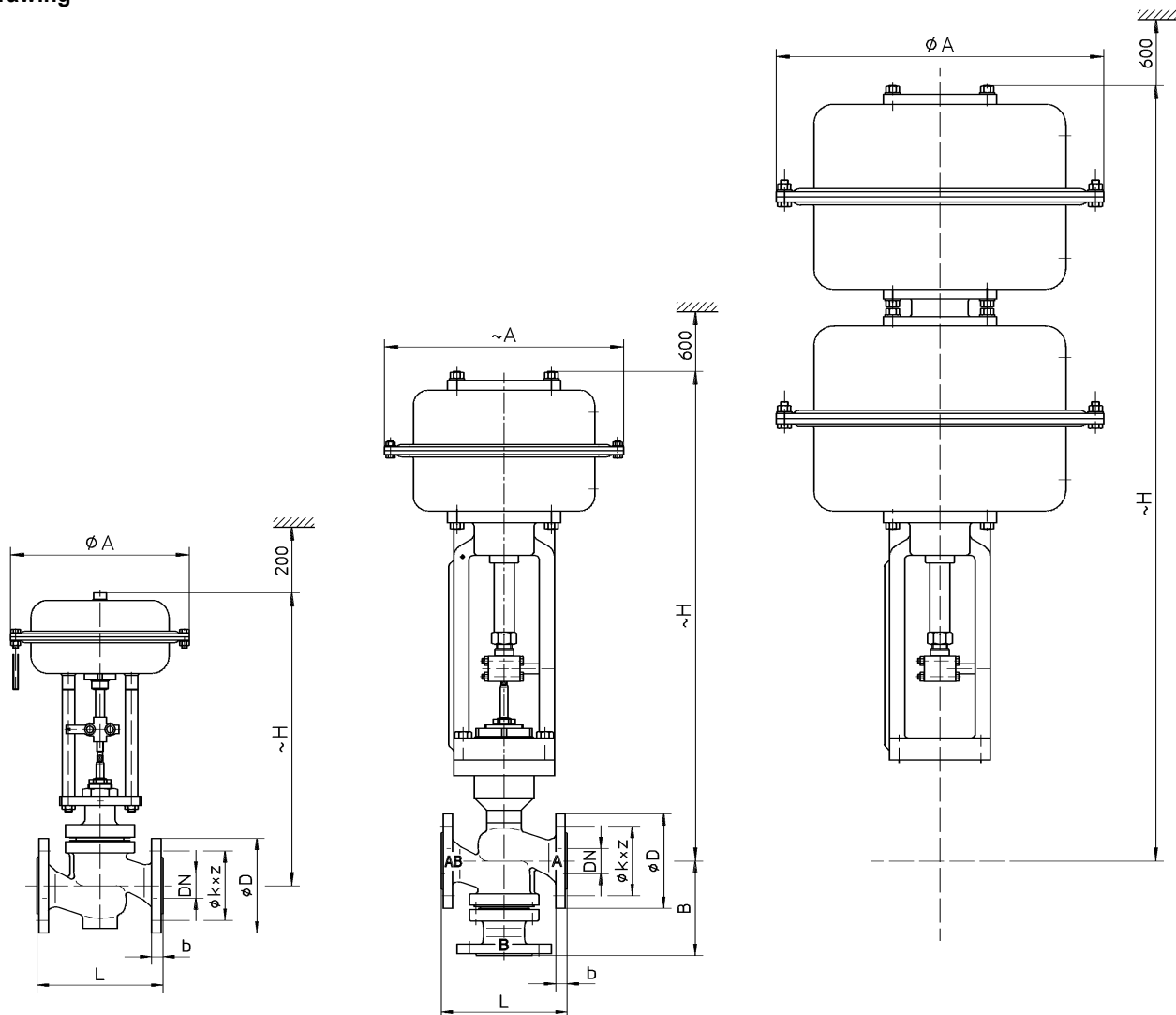
with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

BR316
BR325
BR340S
BR340E

Drawing



BR2... PA-N160
PA-N300
PA-N540
PA-N1080

BR3... PA-N160
PA-N300
PA-N540
PA-N1080

PA-N2160

Installation instruction:

Valve trim could be damaged by dirt in the pipe system. Therefore we recommend the installation of strainers.

Type		PA-N160	PA-N300	PA-N540	PA-N1080	PA-N2160
A	mm	202	284	380	520	520

3.1.1
10/14

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Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



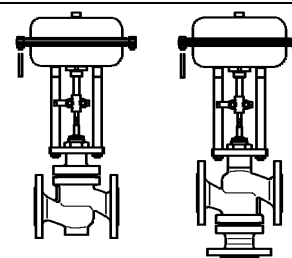
Excellence is our standard

Control valves with pneumatic actuators up to 350°C

PN 16-40 3.1.1

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



**BR216
BR225
BR240S
BR240E**

**BR316
BR325
BR340S
BR340E**

Dimension

BR216 / BR316 and BR225 / BR325

DN		15	20	25	32	40	50	65	80	100	125	150	200 ¹⁾	250 ¹⁾	300 ¹⁾
L	mm	130	150	160	180	200	230	290	310	350	400	480	600	730	850
B	mm	130	130	130	150	150	160	170	215	215	260	280	400	450	550
PN 16	Ø D	mm	95	105	115	140	150	165	185	200	220	250	285	340	405
	Ø k	mm	65	75	85	100	110	125	145	160	180	210	240	295	355
	z	mm	4x Ø14			4x Ø18				8x Ø18			8x Ø22	12x Ø22	12x Ø26
	b	mm	16	16	18	18	18	20	20	20	22	24	24	30	32
PN 25	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300		
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250		
	z	mm	4x Ø14			4x Ø18				8x Ø18	8x Ø22	8x Ø26			
	b	mm	16	16	18	18	18	20	20	20	22	24	24		
H	PA-N160	BR2...	mm	417	417	417	432	432							
		BR3...	mm	372	372	372	392	392							
	PA-N300	BR2...	mm	480	480	480	495	495	515	525					
		BR3...	mm	440	440	440	455	455	475	490					
	PA-N540	BR2...	mm						780	785	790	810			
		BR3...	mm						750	765	785	815			
	PA-N1080	BR2...	mm									883	908	1023	1228
		BR3...	mm									883	903	1078	1163
	PA-N2160	BR2...	mm									1204	1229	1394	1564
		BR3...	mm											1409	1499

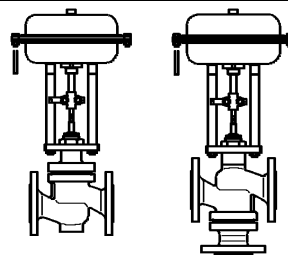
¹⁾ PN 16

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



**BR216
BR225
BR240S
BR240E**

**BR316
BR325
BR340S
BR340E**

BR240S / BR340S and BR240E / BR340E

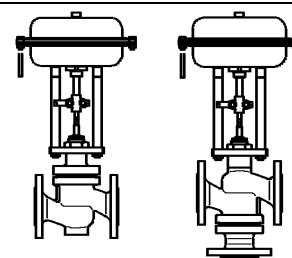
DN		15	20	25	32	40	50	65	80	100	125	150	200	250	300		
L		mm	130	150	160	180	200	230	290	310	350	400	480	600	730	850	
B		mm	130	130	130	150	150	160	170	215	215	260	280	400	450	550	
PN 16	Ø D	mm	95	105	115	140	150	165	185	200	220	250	285	340	405	460	
	Ø k	mm	65	75	85	100	110	125	145	160	180	210	240	295	355	410	
	z	mm	4x Ø14			4x Ø18			8x Ø18			8x Ø22	12x Ø22	12x Ø26			
	b	mm	16	18	18	18	18	20	18	20	20	22	22	24	26	28	
PN 25	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300	360	425	485	
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250	310	370	430	
	z	mm	4x Ø14			4x Ø18			8x Ø18		8x Ø22	8x Ø26		12x Ø26	12x Ø30	16x Ø30	
	b	mm	16	18	18	18	18	20	22	24	24	26	28	30	32	34	
PN 40	Ø D	mm	95	105	115	140	150	165	185	200	235	270	300	375	450	515	
	Ø k	mm	65	75	85	100	110	125	145	160	190	220	250	320	385	450	
	z	mm	4x Ø14			4x Ø18			8x Ø18		8x Ø22	8x Ø26		12x Ø30	12x Ø33	12x Ø33	
	b	mm	16	18	18	18	18	20	22	24	24	26	28	34	38	42	
H	PA-N160	BR2...	mm	417	417	417	432	432									
		BR3...	mm	372	372	372	392	392									
	PA-N300	BR2...	mm	480	480	480	495	495	515	525							
		BR3...	mm	440	440	440	455	455	475	490							
	PA-N540	BR2...	mm						780	785	790	810					
		BR3...	mm						750	765	785	815					
	PA-N1080	BR2...	mm									883	908	1023	1228	1288	
		BR3...	mm									883	903	1078	1163	1208	
	PA-N2160	BR2...	mm									1204	1229	1394	1564	1619	
		BR3...	mm											1409	1499	1544	

Control valves with pneumatic actuators up to 350°C

PN 16-40 3.1.1

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



**BR216
BR225
BR240S
BR240E**

**BR316
BR325
BR340S
BR340E**

Weight without manual operation

PN16 / PN25

DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300
m	PA-N 160	BR2... kg	10	12	13	14	17									
		BR3... kg	11	12	14	16	18									
	PA-N 300	BR2... kg	17	19	20	21	24	26	30							
		BR3... kg	18	19	21	23	25	29	33							
	PA-N 540	BR2... kg						56	60	73	85					
		BR3... kg						59	63	77	88					
	PA-N 1080	BR2... kg										181	213	350	435	525
		BR3... kg										193	224	390	480	585
	PA-N 2160	BR2... kg										266	298	435	505	595
		BR3... kg												475	550	655

PN40

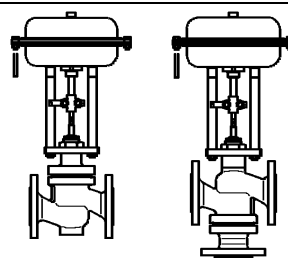
DN			15	20	25	32	40	50	65	80	100	125	150	200	250	300
m	PA-N 160	BR2... kg	13	14	16	19	20									
		BR3... kg	14	15	17	22	23									
	PA-N 300	BR2... kg	20	21	23	26	27	32	40							
		BR3... kg	21	22	24	29	30	35	46							
	PA-N 540	BR2... kg						62	70	81	96					
		BR3... kg						65	76	88	101					
	PA-N 1080	BR2... kg										187	222	380	500	605
		BR3... kg										199	241	420	560	685
	PA-N 2160	BR2... kg										269	323	462	567	672
		BR3... kg												502	627	752

Control valves with pneumatic actuators up to 350°C

PN 16-40 **3.1.1**

Flanged connection
PN 16-40
Cast iron
Spheroidal graphite
Cast steel
Stainless steel

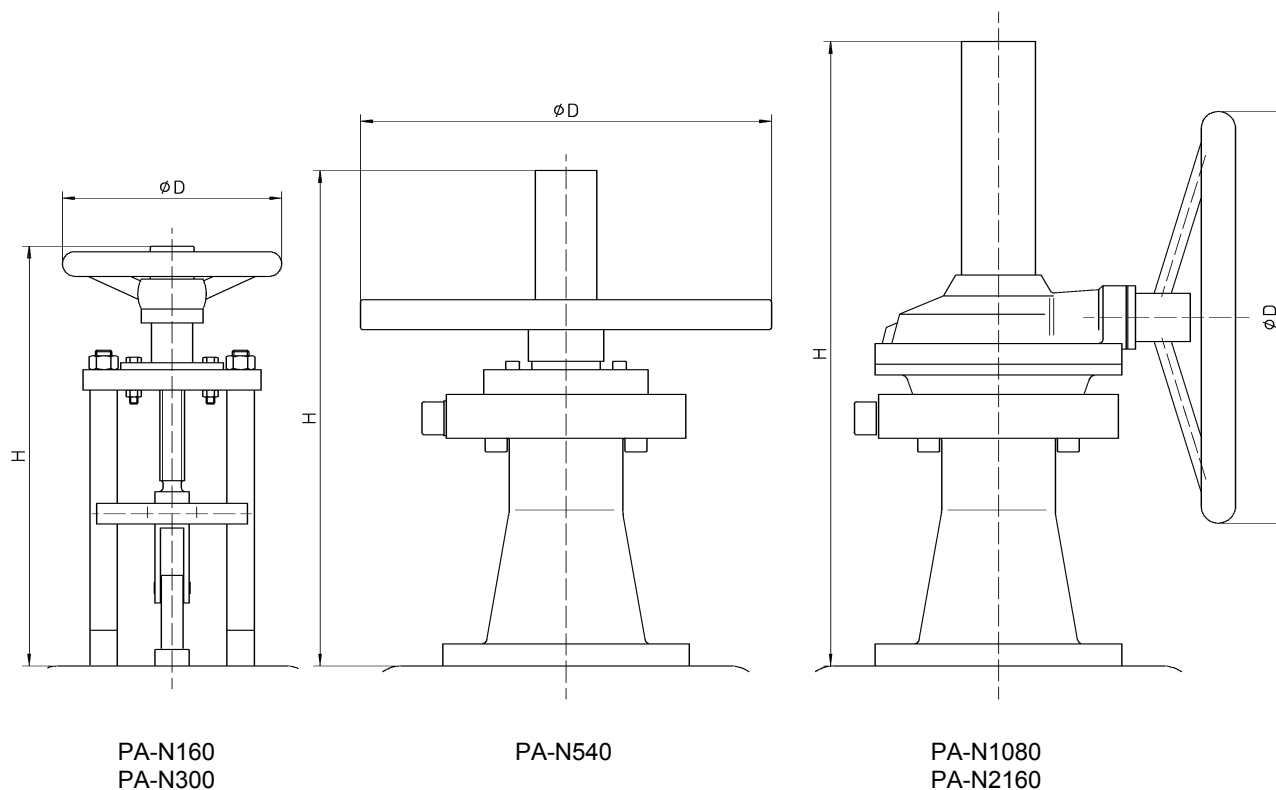
with pneumatic actuators
PA-N160 • PA-N300 • PA-N540
PA-N1080 • PA-N2160



BR216
BR225
BR240S
BR240E

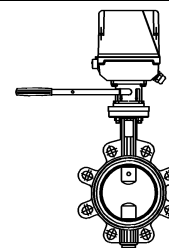
BR316
BR325
BR340S
BR340E

Manual operation



Type		PA-N160	PA-N300		PA-N540		PA-N1080		PA-N2160	
Stroke	mm	20	20	30	30	50	60	80	60	80
H	mm	315	315		361		450		450	
D	mm	175	175		300		400		500	
Weight handwheel	kg	3	3		19		24		33	

Fully lugged type	with electric quarter-turn actuators
PN 6-16	M125 • M125
Spheroidal graphite	M135 • M135
	M140 • M140
	M150 • M150
	M180 • M180

**BR16ZF****Features**

- Applications include HEVAC and drinking water systems, sanitary and industrial plants for control or shut-off of water and steam -10...+110°C
- Leakage rate: tight sealing
- Control and shut-off butterfly valves for open and closed circuits
- Centralised flap
- Gear disengagemant feature
- Manual override on adapter
- Rotation direction indication

Technical data butterfly valve

Series	BR16ZF	
Diameter nominal	DN 25 – DN 200	
Pressure rating	PN 6-16	
Body	Spheroidal graphite	GGG-40, EN-JS1030
Seat ring	EPDM	
Flap	CrNi-steel	1.4581
Shaft	CrNi-steel	1.4021
Shaft sealing	EPDM	

Media: Chilled-, hot- and industrial water, low pressure steam, water with antifreeze and anticorrosive compounds (appr. 50%): glycol, glycerine, ethylene glycol, propylene glycol, mono ethylene, ethanol, methyl alcohol, antifrogen® N+L

Flow direction: optionally from both side

Connection type: Fully lugged type PN 6-16

Face to face dimension: Acc. EN 558-1 basic series 20

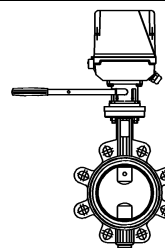
Leakage rate: EN 1349 – seat-leakage VI G1 (tight sealing)

Butterfly valve variant and accessories

- Special varnish, max. 80°C
- technical silicon free version (DN 50 – DN 200)

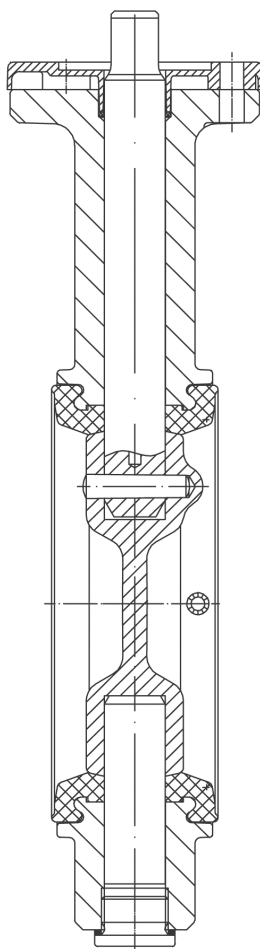
Fully lugged type
PN 6-16
Spheroidal graphite

with electric quarter-turn actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150
M180 • M180



BR16ZF

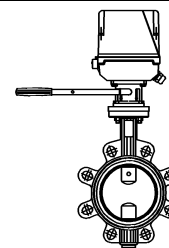
Drawing



BR16ZF

Fully lugged type
PN 6-16
Spheroidal graphite

with electric quarter-turn actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150
M180 • M180



BR16ZF

Technical data actuator M125

Type		M125
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	25
Power supply	VAC	230 +6% -10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	6.5
Input signal ²⁾		3-point

Enclosure protection: IP 43

Operating mode: S1-100% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

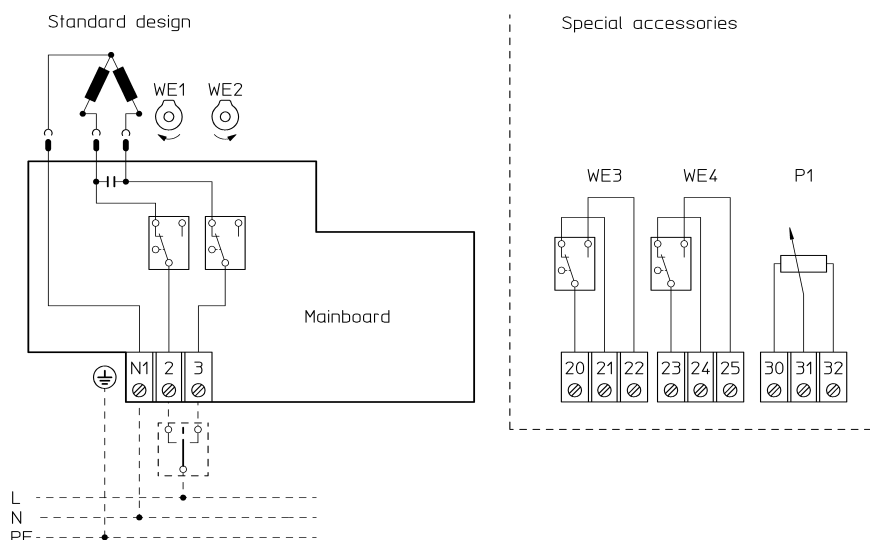
Ambient temperature: 0...+50°C

Weight: 1.2 kg

Actuator variant and accessories

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA

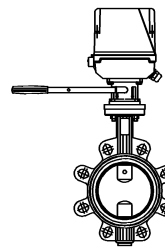
Circuit diagram



01/06/2009 Data subject to change without notice

Fully lugged type
PN 6-16
Spheroidal graphite

with electric quarter-turn actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150
M180 • M180



BR16ZF

Technical data actuator M135 – M180

Type		M135		M140
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70	10
Nominal torque	Nm	35	15	50
Power supply	VAC	230 +6% -10%		230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%		50/60 ±5%
Power consumption	VA	9		55
Input signal		3-point		3-point

Type		M150		M180	
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70	I=130	II=70
Nominal torque	Nm	50	40	80	80
Power supply	VAC	230 +6% -10%		230 +6% -10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	12		26	
Input signal		3-point		3-point	

Enclosure protection: IP 54

Operating mode: M135/M150 S1-100% ED c/h 1200 EN 60034-1
M140 S3-50% ED c/h 1200 EN 60034-1
M180 S3-60% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

Weight: M135/M150 2.5 kg
M140/M180 3.0 kg

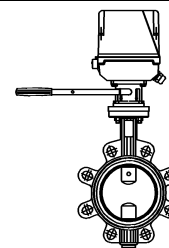
Actuator variant and accessories

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA
- Enclosure protection: IP 65
- Heater: -20°C ... +50°C 25 VA
24, 115, 230 VAC 50/60 Hz

¹⁾ Please state when ordering

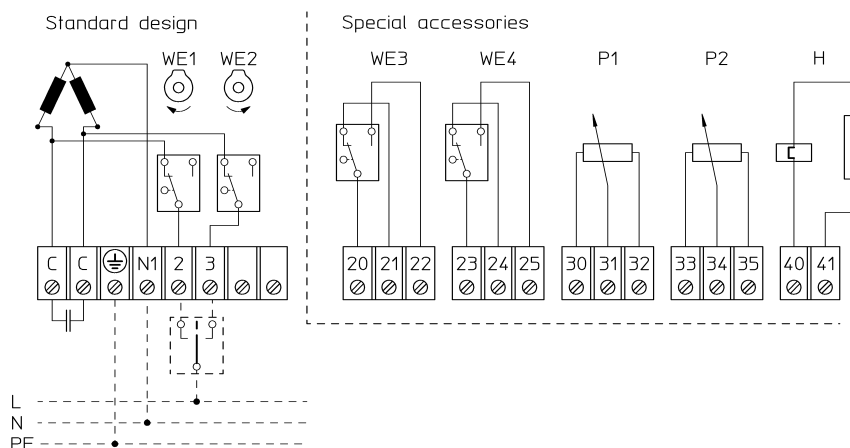
Fully lugged type
PN 6-16
Spheroidal graphite

with electric quarter-turn actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150
M180 • M180



BR16ZF

Circuit diagram



Technical data butterfly valve with actuator

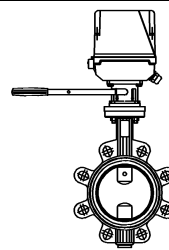
DN			25	32	40	50	65	80	100	125	150	200	
kvs-value			m³/h	36	40	85	95	230	490	690	1450	1945	4095
M125	I	Actuating time/90°	s	130									
	Closing pressure		kPa	1600	1600	1600	1600	1000	1000	300			
M135	I	Actuating time/90°	s	130									
	Closing pressure		kPa	1600	1600	1600	1600	1600	1600	600			
	II	Actuating time/90°	s	70									
	Closing pressure		kPa	1600	1600	1600	1600	1000					
M140	I	Actuating time/90°	s	10									
	Closing pressure		kPa	1600	1600	1600	1600	1600	1600	1600	600	600	
M150	I	Actuating time/90°	s				130						
	Closing pressure		kPa				1600	1600	1600	600	600		
	II	Actuating time/90°	s				70						
	Closing pressure		kPa				1600	1600	600	250	250		
M180	I	Actuating time/90°	s							130			
	Closing pressure		kPa							1600	600	600	
	II	Actuating time/90°	s							70			
	Closing pressure		kPa							1600	600	600	

The closing pressure is limited by the nominal pressure.
100 kPa = 1 bar = 10 mWS

01/06/2009 Data subject to change without notice

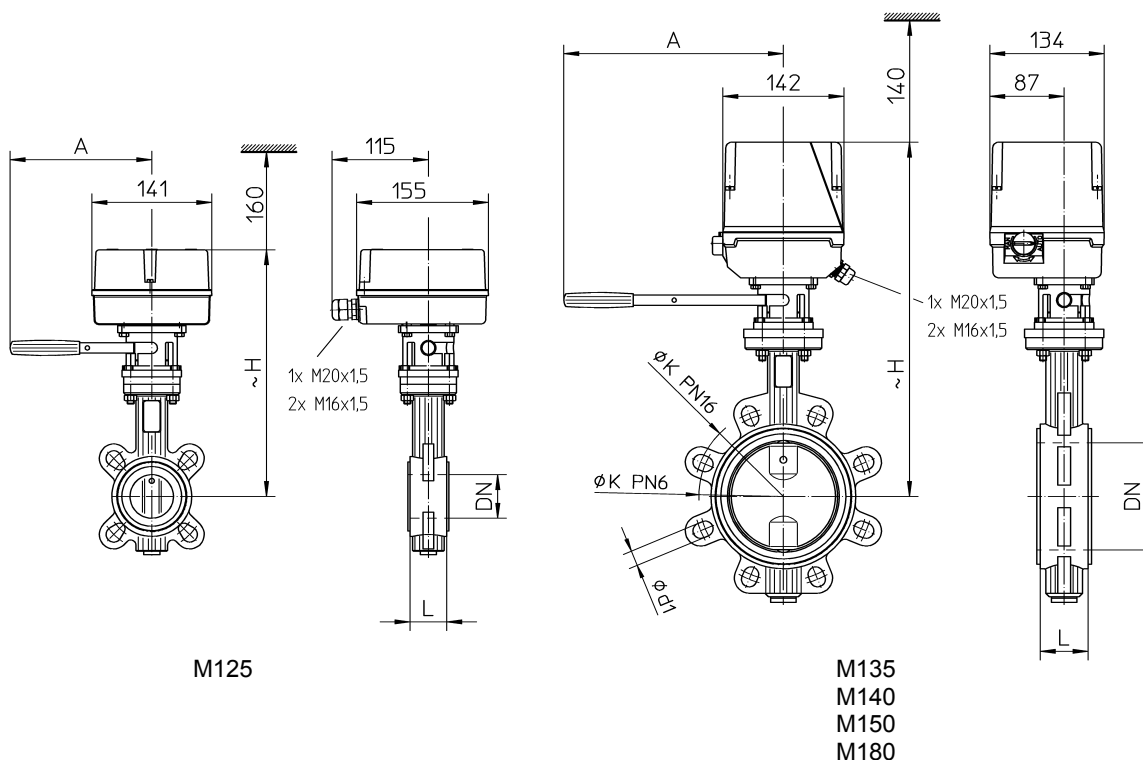
Fully lugged type
PN 6-16
Spheroidal graphite

with electric quarter-turn actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150
M180 • M180



BR16ZF

Drawing



Dimension

DN		25	32	40	50	65	80	100	125	150	200
L	mm	33	33	33	43	46	46	52	56	56	60
A	mm	165	165	165	165	165	165	165	255	255	255
K	PN6	mm	75	90	100	110	130	150	170	200	280
	PN10 / PN16	mm	85	100	110	125	145	160	180	210	295
n x d1	PN6	mm	4xØ11	4xØ11	4xØ14	4xØ14	4xØ14	4xØ18	8xØ18	8xØ18	8xØ18
	PN10 / PN16	mm	4xØ18	4xØ18	4xØ18	4xØ18	4xØ18	4xØ18	8xØ18	8xØ22	8xØ22
H	M125	mm	278	278	284	290	300	308	329		
	M135	mm	348	348	354	360	370	378	399		
	M140	mm	348	348	354	360	370	378	399	416	432
	M150	mm					370	378	399	416	432
	M180	mm							416	432	466
m	M125	kg	4.6	4.6	4.8	5.2	5.8	6.4	7.2		
	M135	kg	5.9	5.9	6.1	6.5	7.1	7.7	8.5		
	M140	kg	6.4	6.4	6.6	7.0	7.6	8.2	9.0	12.3	14.3
	M150	kg					7.1	7.7	8.5	11.8	13.8
	M180	kg							12.3	14.3	18.3

4.1.1
6/6

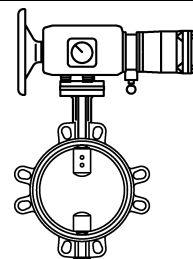
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Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



**BR16ZFA
BR16ZFR**

Features

- Applications include HEVAC and drinking water systems, sanitary and industrial plants for control or shutt-off of water and steam -10...+110°C
- Leakage rate: tight sealing
- Control and shutt-off butterfly valves for open and closed circuits
- Centralised flap
- Electric quarter-turn actuator with rotation direction indication
- Manual override by hand wheel

Technical data butterfly valve

Series	BR16ZFA / BR16ZFR	
Diameter nominal	DN 50 – DN 350	
Pressure rating	PN 6-16	
Body	Spheroidal graphite	GGG-40, EN-JS1030
Seat ring	EPDM	
Flap	CrNi-steel	1.4581
Shaft	CrNi-steel	1.4021
Shaft sealing	EPDM	

Media: Chilled-, hot- and industrial water, low pressure steam, water with antifreeze and anticorrosive compounds (appr. 50%): glycol, glycerine, ethylene glycol, propylene glycol, mono ethylene, ethanol, methyl alcohol, antifrogen® N+L

Flow direction: optionally from both side

Connection type: Fully lugged type PN 6-16

Face to face dimension: Acc. EN 558-1 basic series 20

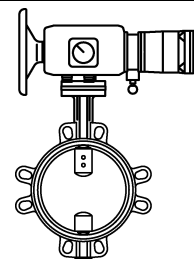
Leakage rate: EN 1349 – seat-leakage VI G1 (tight sealing)

Butterfly valve variant and accessories

- Special varnish, max. 80°C
- technical silicon free version

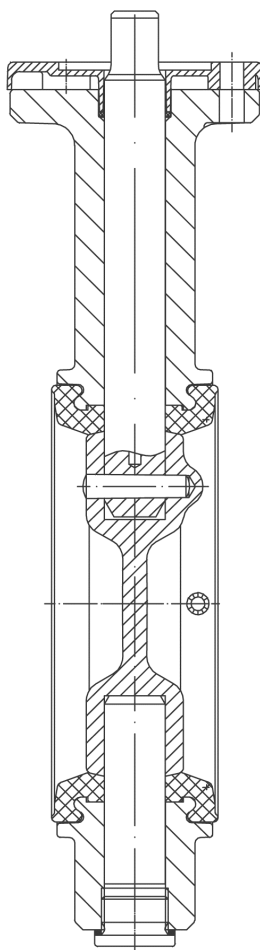
Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



BR16ZFA
BR16ZFR

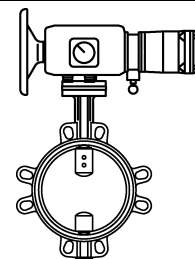
Drawing



BR16ZFA
BR16ZFR

Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



BR16ZFA
BR16ZFR

Technical data actuator OA6 – AS50

Actuators for shut-off butterfly valves BR16ZFA:

Type		OA6	OA8
Actuating time at 50 Hz /90°	s	6	6
Nominal torque	Nm	63	80
Power supply	VAC	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,03	0,06
Nominal current	A	0,6	1,2

Type		AS18	ASP25	AS50
Actuating time at 50 Hz /90°	s	6	30	30
Nominal torque	Nm	180	250	500
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,2	0,03	0,06
Nominal current	A	2,5	0,6	1,2

Actuators for control valves BR16ZFR:

Type		OAP8	ASP25	AS50
Actuating time at 50 Hz /90°	s	30	60	60
Nominal torque	Nm	80	250	500
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,03	0,03	0,06
Nominal current	A	0,6	0,6	1,2

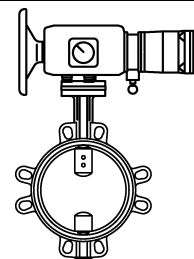
Enclosure protection: IP 67

Operating mode: for shut-off butterfly valves:
 OA6/OA8/AS18/ASP25: S4-30% ED c/h 300 EN 60034-1
 AS50: S4-50% ED c/h 1200 EN 60034-1
for control valves:
 OAP8/ASP25/AS50 S4-50% ED c/h 1200 EN 60034-1

¹⁾ Please state when ordering

Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



BR16ZFA
BR16ZFR

End position switch-off:	OA6/OA8/OAP8:	In each end position 1 position switch is mechanically limited to 90°
	AS18/ASP25/AS50:	In each end position 1 position switch and 1 torque switch is mechanically limited to 90°
Ambient temperature:	0...+50°C	
Weight:	OA6:	6 kg
	OA8/OAP8:	7 kg
	AS18:	16 kg
	ASP25:	18 kg
	AS50:	17 kg

Actuator variant and accessories

• Voltage/Frequency	3 ~ 400 VAC
• Tropic version	
• Low temperature version	-45°C...+50°C / 5 VA / 230 VAC
• Position switch unit	max. 2 pieces (WE3/WE4) Rated load: max. 10 A / 250 VAC
• Potentiometer	0.1 / 0.2 / 1 kOhm 1.0 VA
• Heater	-20°C...+50°C / 5 VA / 230 VAC

Connection between butterfly valve and actuator

for shut-off butterfly valves BR16ZFA:

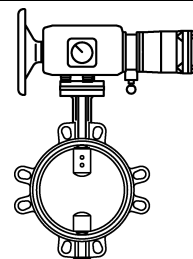
Butterfly valve	Actuator	Square socket / 2-flat	Square shaft / 2-flat
DN 50 – DN 100	OA6	11 mm / 90° (F05) 2-flat	11 mm (F05) 2-flat
DN125	OA6	17 mm / 90° (F07) 2-flat	17 mm (F07) 2-flat
DN 150	OA8	17 mm / 90° (F07) 2-flat	17 mm (F07) 2-flat
DN 200	AS18	17 mm / 90° (F07) 2-flat	17 mm (F07) 2-flat
DN 250	ASP25	22 mm / 45° (F10)	22 mm (F10)
DN 300 – DN 350	AS50	22 mm / 45° (F10)	22 mm (F10)

for control valves BR16ZFR:

Butterfly valve	Actuator	Square socket / 2-flat	Square shaft / 2-flat
DN 50 – DN 100	OAP8	11 mm / 90° (F05) 2-flach	11 mm (F05) 2-fat
DN 125 - 150	OAP8	17 mm / 90° (F07) 2-flach	17 mm (F07) 2-fat
DN 150 – DN 200	ASP25	17 mm / 90° (F07) 2-flach	17 mm (F07) 2-fat
DN 250	ASP25	22 mm / 45° (F10)	22 mm (F10)
DN 300 – DN 350	AS50	22 mm / 45° (F10)	22 mm (F10)

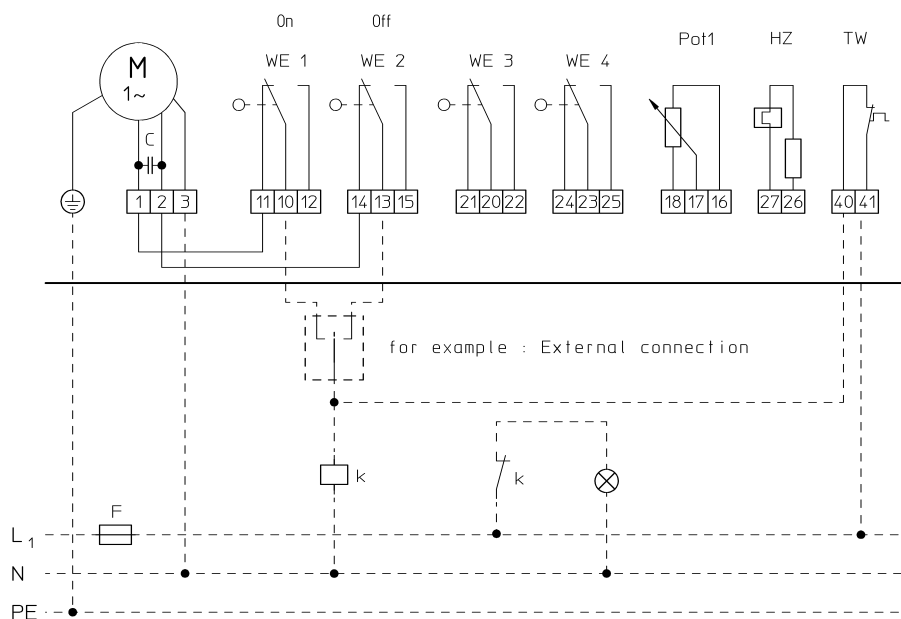
Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50

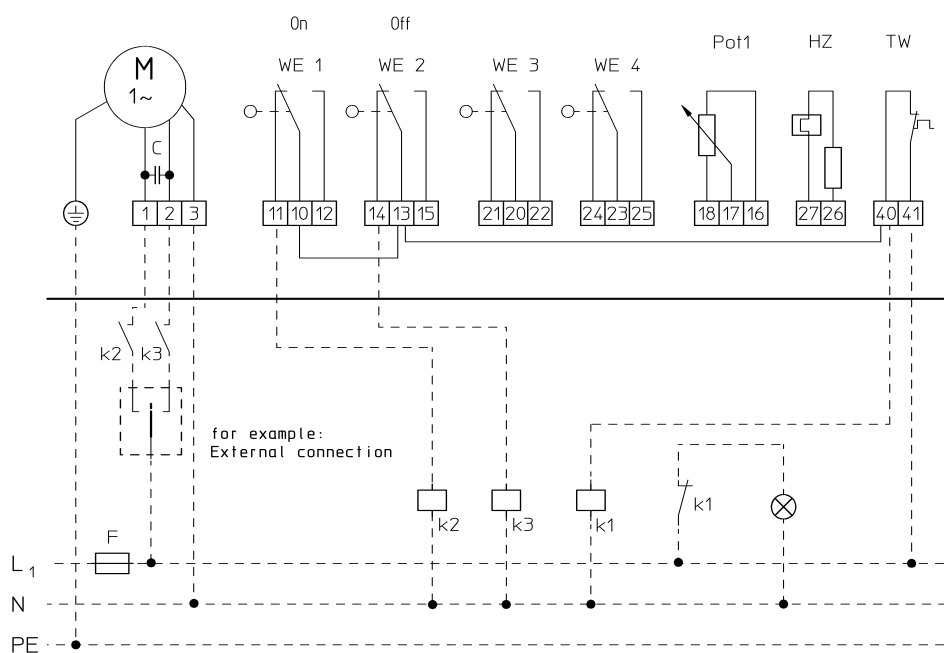


BR16ZFA
BR16ZFR

Circuit diagram OA6 / OAP8

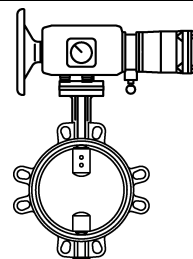


Circuit diagram OA8



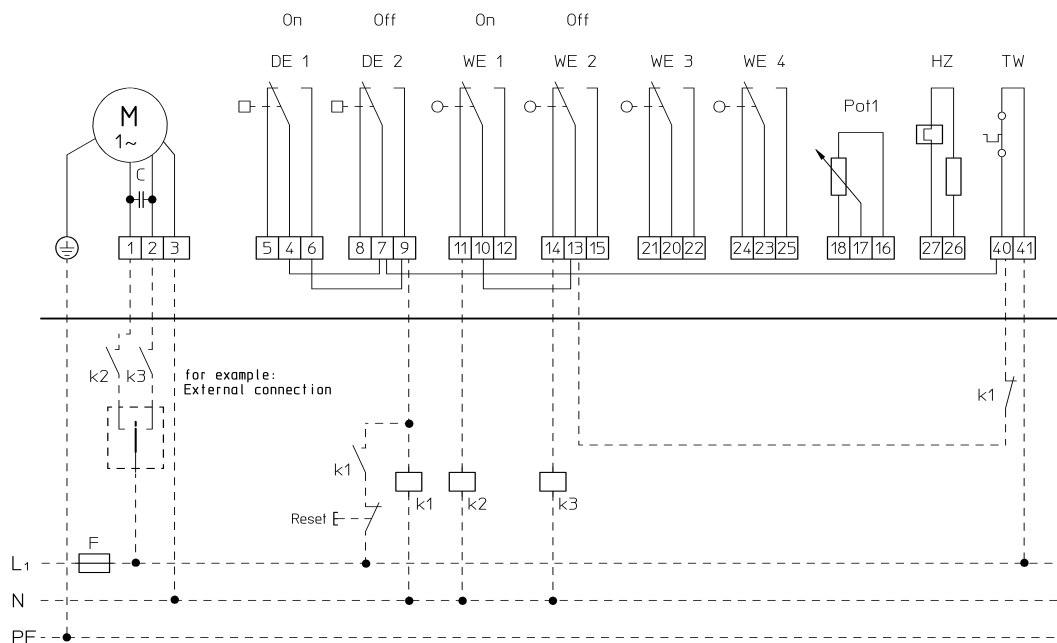
Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50

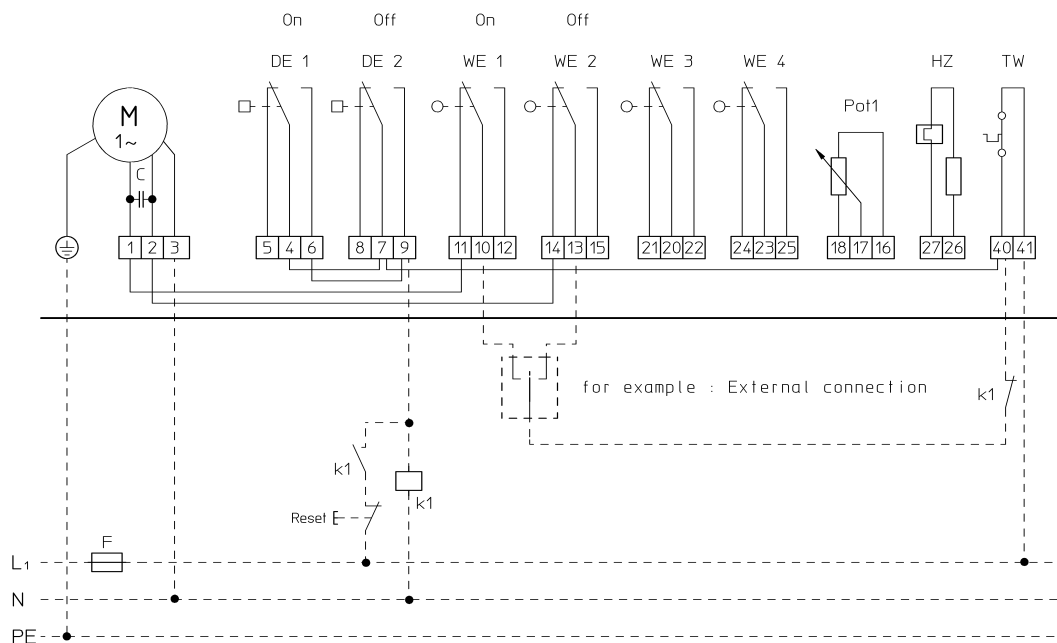


BR16ZFA
BR16ZFR

Circuit diagram AS18 / AS50

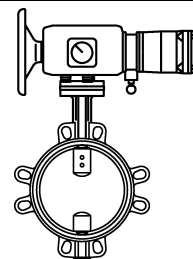


Circuit diagram ASP25



Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



BR16ZFA
BR16ZFR

Technical data butterfly valve with actuator

Shut-off butterfly valves BR16ZFA

DN		50	65	80	100	125	150	200	250	300	350
kvs-Wert	m³/h	95	230	490	690	1450	1945	4095	6085	9570	13500
OA6	Actuating time/90°	s	6								
	Closing pressure	kPa	1600	1600	1600	1600	1600				
OA8	Actuating time/90°	s					6				
	Closing pressure	kPa					600				
AS18	Actuating time/90°	s						6			
	Closing pressure	kPa						600			
ASP25	Actuating time/90°	s							30		
	Closing pressure	kPa							1000		
AS50	Actuating time/90°	s								30	
	Closing pressure	kPa								1000	1000

The closing pressure is limited by the nominal pressure.
100 kPa = 1 bar = 10 mWS

Control butterfly valves BR16ZFR

DN		50	65	80	100	125	150	200	250	300	350
kvs-Wert	m³/h	95	230	490	690	1450	1945	4095	6085	9570	13500
OAP8	Actuating time/90°	s					30				
	Closing pressure	kPa	1600	1600	1600	1600	1600	1000			
ASP25	Actuating time/90°	s					60				
	Closing pressure	kPa						600	600	1000	
AS50	Actuating time/90°	s							60		
	Closing pressure	kPa								1000	1000

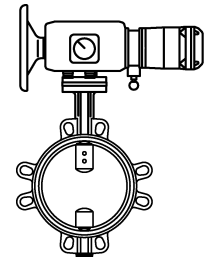
The closing pressure is limited by the nominal pressure.
100 kPa = 1 bar = 10 mWS

Control shut-off butterfly valves DN 50 – DN 350

PN 6-16 **4.2.1**

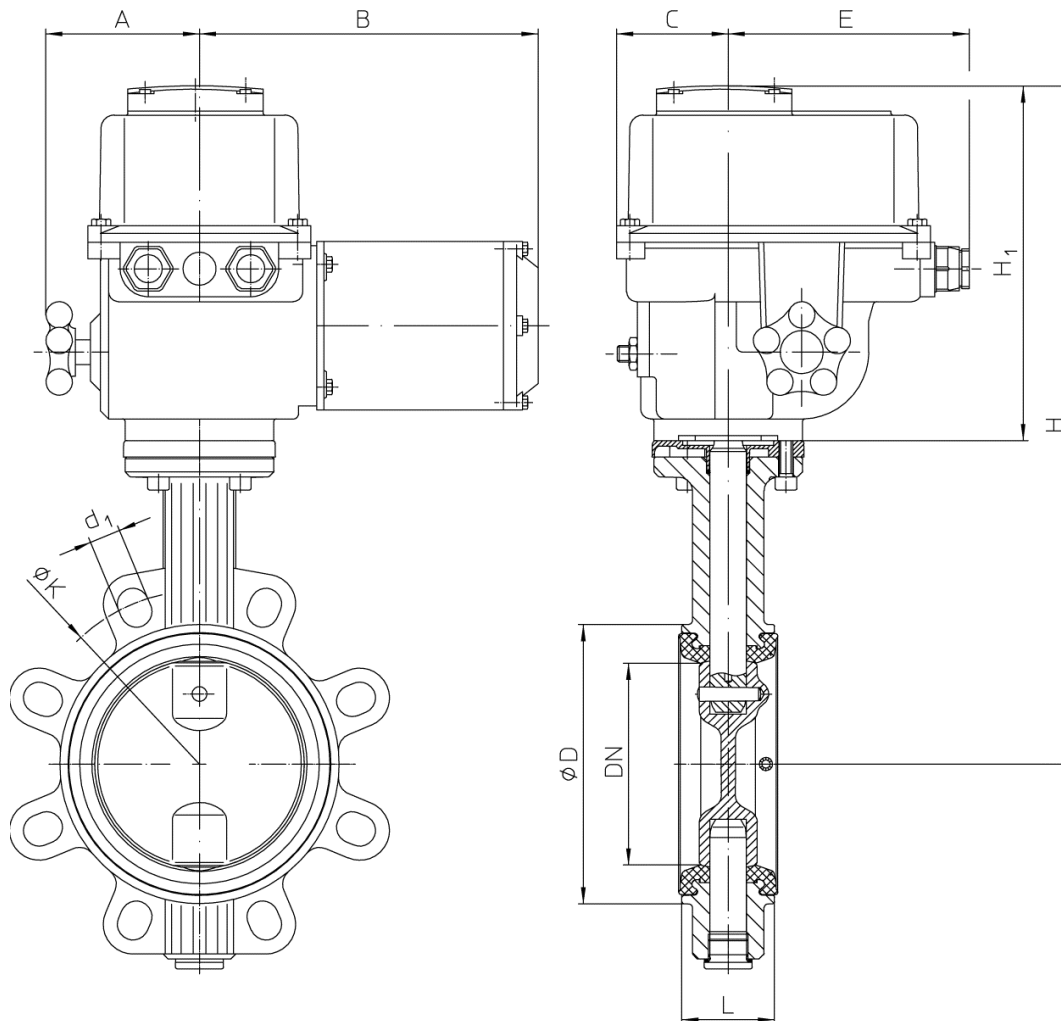
Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50



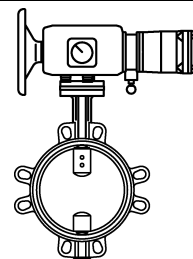
BR16ZFA
BR16ZFR

Drawing



Fully lugged type
PN 6-16
Sphäroguß

with electric quarter-turn actuators
OA6 • OA8 • OAP8
AS18 • ASP25 • AS50

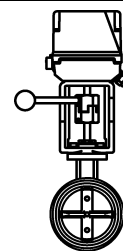


BR16ZFA
BR16ZFR

Dimension

DN			50	65	80	100	125	150	200	250	300	350
L		mm	43	46	46	52	56	56	60	68	78	78
K	PN6	mm	110	130	150	170	200	225	280	335	395	on request
	PN10	mm	125	145	160	180	210	240	295	350	400	460
	PN16	mm	125	145	160	180	210	240	295	355	410	470
n x d1	PN6	mm	4xØ14	4xØ14	4xØ18	4xØ18	8xØ18	8xØ18	8xØ18	12xØ18	12xØ22	on request
	PN10	mm	4xØ18	4xØ18	4xØ18	4xØ18	8xØ18	8xØ22	8xØ22	8xØ18	8xØ22	4xØ22
	PN16	mm	4xØ18	4xØ18	4xØ18	4xØ18	8xØ18	8xØ22	8xØ22	8xØ26	8xØ26	4xØ26
H	OA6/OA8/OAP8	mm	364	374	382	403	420	436				
	AS18/AS50/ASP25	mm							423	450	479	535
H ₁	OA6/OA8/OAP8	mm	224	224	224	224	224	224				
	AS18/AS50/ASP25	mm							177	177	177	177
A	OA6/OA8/OAP8	mm	90	90	90	90	90	90				
	AS18/AS50/ASP25	mm							167	167	167	167
B	OA6/OA8/OAP8	mm	202	202	202	202	202	202				
	AS18/AS50/ASP25	mm							340	340	340	340
C	OA6/OA8/OAP8	mm	65	65	65	65	65	65				
	AS18/AS50/ASP25	mm							89	89	89	89
E	OA6/OA8/OAP8	mm	125	125	125	125	125	125				
	AS18/AS50/ASP25	mm							226	226	226	226
m	OA6	kg	7.8	8.2	8.8	9.9	12.4					
	OA8/OAP8	kg	8.8	9.2	9.8	10.9	13.4	14.8				
	AS18/ASP25	kg						23.8	27.9	37.4		
	AS50	kg									45.5	61.0

Wafer type	with electric actuators
PN 6-16	M125 • M125
Cast iron	M135 • M135
	M140 • M140
	M150 • M150



BRDR6/16
BRDRP6/16

Features

- Suitable as control or shutt-off butterfly valve in HEVAC systems for water 0...+110°C
- For connecting and disconnecting a heat exchanger in boiler sequencing applications
- Centralised flap
- Gear disengagemant feature
- Rotation direction indication

Technical data butterfly valve

Series	BRDR6/16		BRDRP6/16	
Diameter nominal	DN 25 – DN 200		DN 25 – DN 200	
Pressure rating	PN 6-16		PN 6-16	
Leakage rate	≤ 0.5% of kvs-value		≤ 0.05% of kvs-value	
Body	Cast iron	EN-JL1040	Cast iron	EN-JL1040
Seat ring	Cast iron	EN-JL1040	PTFE	
Flap	Bronze	CC491K	Bronze	CC491K
Shaft	CrNi-steel	1.4057	CrNi-steel	1.4057
Shaft sealing	O-ring	EPDM	O-ring	EPDM

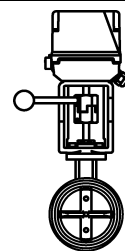
Media: Hot water, water with antifreeze and anticorrosive compounds (appr. 50%): glycol, glycerine, ethylene glycol, propylene glycol, mono ethylene, ethanol, methyl alcohol, antifrogen[®] N+L

Flow direction: optionally from both side

Connection type: Wafer type PN 6-16

Wafer type
PN 6-16
Cast iron

with electric actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150

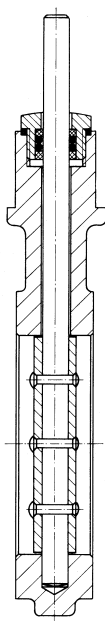


BRDR6/16
BRDRP6/16

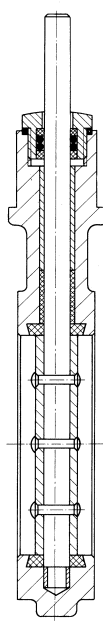
Butterfly valve variant

- Special varnish, max. 80°C

Drawing



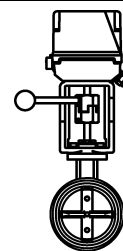
BRDR6/16



BRDRP6/16

Wafer type
PN 6-16
Cast iron

with electric actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150



BRDR6/16
BRDRP6/16

Technical data actuator M125

Type		M125
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	25
Power supply	VAC	230 +6% -10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	6.5
Input signal		3-point

Enclosure protection: IP 43

Operating mode: S1-100% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

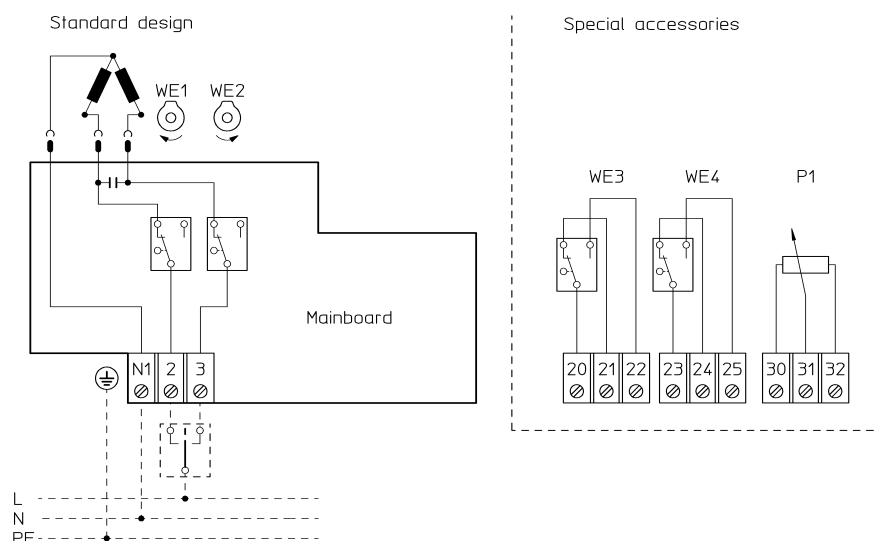
Ambient temperature: 0...+50°C

Weight: 1.2 kg

Actuator variant and accessories

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA

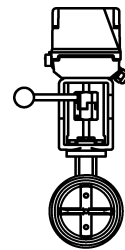
Circuit diagram



01/06/2009 Data subject to change without notice

Wafer type
PN 6-16
Cast iron

with electric actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150



BRDR6/16
BRDRP6/16

Technical data actuator M135 – M150

Type		M135		M140
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70	10
Nominal torque	Nm	35	15	50
Power supply	VAC	230 +6% -10%		230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%		50/60 ±5%
Power consumption	VA	9		55
Input signal		3-point		3-point

Type		M150	
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70
Nominal torque	Nm	50	40
Power supply	VAC	230 +6% -10%	
Frequency	Hz	50/60 ±5%	
Power consumption	VA	12	
Input signal		3-point	

Enclosure protection: IP 54

Operating mode: M135/M150 S1-100% ED c/h 1200 EN 60034-1
M140 S3-50% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

Weight: M135/M150 2.5 kg
M140 3.0 kg

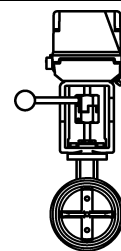
Actuator variant and accessories

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA
- Enclosure protection: IP 65
- Heater: -20°C ... +50°C 25 VA
24, 115, 230 VAC 50/60 Hz

¹⁾ Please state when ordering

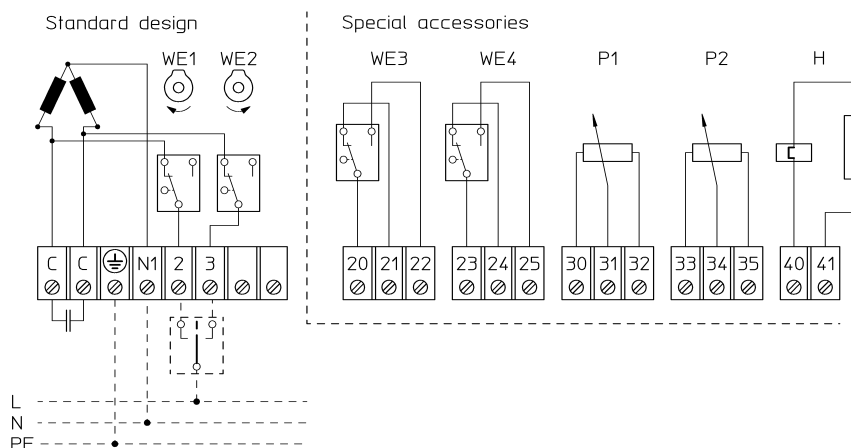
Wafer type
PN 6-16
Cast iron

with electric actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150



BRDR6/16
BRDRP6/16

Circuit diagram



Technical data butterfly valve with actuator

DN			25	32	40	50	65	80	100	125	150	200			
kvs-value			m³/h	12	20	47	85	165	250	435	745	1350	2300		
M125	I	Actuating time/90°	s	130											
	Closing pressure		kPa	1600	1600	1600	1200	700	350	200					
M135	I	Actuating time/90°	s	130											
	Closing pressure		kPa	1600	1600	1600	1600	1100	550	300	150	80	30		
	II	Actuating time/90°	s	70											
	Closing pressure		kPa	1600	1600	1600	700	350	200	90					
M140	I	Actuating time/90°	s	10											
	Closing pressure		kPa	1600	1600	1600	1600	1600	850	450	230	130	50		
M150	I	Actuating time/90°	s				130								
	Closing pressure		kPa				1600	850	450	230	130	50			
	II	Actuating time/90°	s				70								
	Closing pressure		kPa				1200	600	350	170	100	40			

The closing pressure is limited by the nominal pressure.
100 kPa = 1 bar = 10 mWS

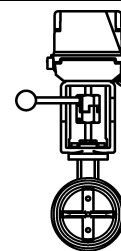
01/06/2009 Data subject to change without notice

Butterfly valves

PN 6-16 **5.1.1**

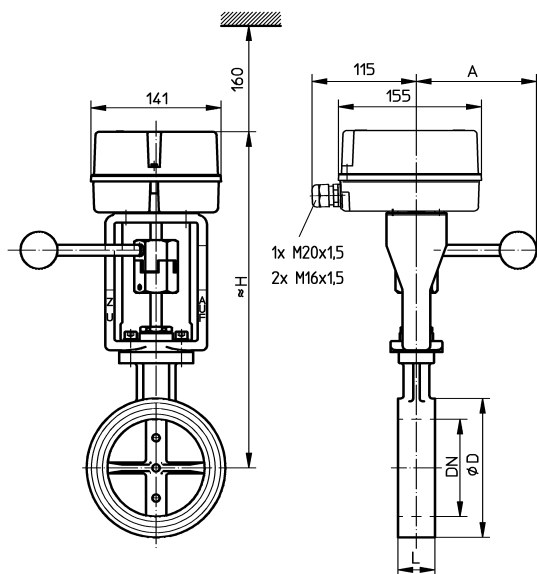
Wafer type
PN 6-16
Cast iron

with electric actuators
M125 • M125
M135 • M135
M140 • M140
M150 • M150

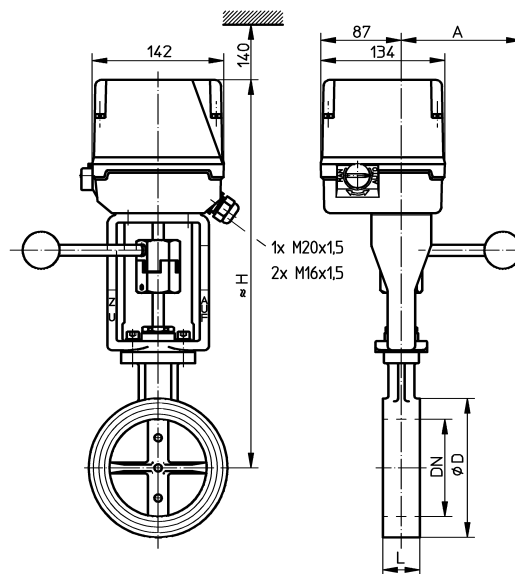


BRDR6/16
BRDRP6/16

Drawing



BR ... M125



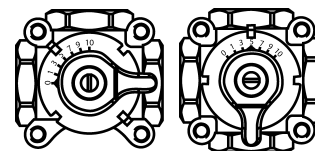
BR ... M135
M140
M150

Dimension

DN		25	32	40	50	65	80	100	125	150	200
L	mm	30	30	30	35	35	40	40	45	45	50
D	mm	62	75	85	95	115	130	150	180	205	260
A	BRDR6/16	mm	160	160	160	160	160	160	160	160	170
	BRDRP6/16	mm	170	170	170	170	170	170	170	170	170
H	M125	mm	320	330	335	345	350	370			
	M135 / M140	mm	385	395	400	410	415	425	435	450	545
	M150	mm					415	425	435	450	545
m	M125	kg	3.7	4.0	4.2	4.6	5.2	5.9	6.5		
	M135 / M140	kg	5.0	5.3	5.5	5.9	6.5	7.2	7.8	9.5	10.4
	M150	kg					6.5	7.2	7.8	9.5	10.4

Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



BRGMMD **BRGMMV**

Features

- Suitable in heating plants for various mediums 0...+110°C
- Three-way threaded mixing valve: Mixing valves freely reversible (heating flow connection can be changed from left to right or below)
- Four-way threaded mixing valve: boiler flow can be changed from left to right
- Microprocessor controlled with automatic self-calibration on start up (MC106Y)
- Gear disengagement feature
- Rotation direction indication

Technical data mixing valve

Series	BRGMMD		BRGMMV	
Diameter nominal	DN 20 – DN 50		DN 20 – DN 50	
Pressure rating	PN 10		PN 10	
Characteristic / flow direction	linear		linear	
Body	Brass	CW617N	Brass	CW617N
Inner trim	Brass	CW617N	Brass	CW617N
Shaft sealing	O-ring	EPDM	O-ring	EPDM

Connection type: Internal thread acc. ISO 7/1

Media: Chilled- and hot water, water with antifreeze and anticorrosive compounds (appr. 50%): glycol, glycerine, ethyl alcohol, propylene dichloride alcohol, mono ethyl alcohol, ethyl, methyl alcohol, glycerine, antidichloride fluor methane® N+L

Leakage rate: EN 1349 – seat-leakage I ($\leq 2\%$ of kvs-value)

Technical data actuator MC106Y / M106

Type	MC106Y	
Actuating time at 50 Hz/90° ¹⁾	s	150 · 80*
Nominal torque	Nm	6
Power supply	VAC	24 ±10%
Frequency	Hz	50 or 60 ±5%
Power consumption	VA	3,0
Input signal ²⁾	0(2)...10 VDC 77 kOhm	
Output signal ²⁾	0...10 VDC max. 8 mA min. 1200 Ohm	

¹⁾ Actuating time freely adjustable, presetting is marked with *

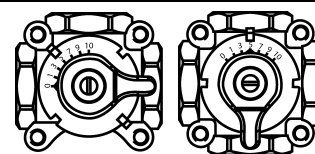
²⁾ Invertible input and output signal

Three-way and four-way threaded mixing valves

PN 10 **6.1.1**

Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



BRGMMD

BRGMMV

Type		M106
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	6
Power supply	VAC	230 +6% -10%
Frequency	Hz	50 or 60 ±5%
Power consumption	VA	3.5
Input signal		3-point

Enclosure protection: IP 43

Operating mode: S4-50% ED c/h 1200 EN 60034-1

End position switch-off: MC106Y position dependent adjustable
M106 position dependent adjustable

Ambient temperature: 0...+50°C

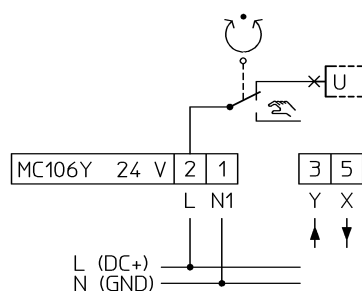
Weight: 0.35 kg

Actuator with 1.5 m cable (flexible), four wire (0.7 mm²) with wire end ferrule

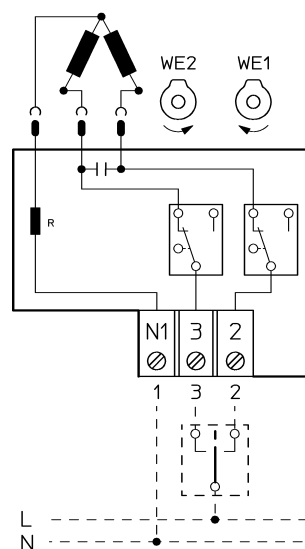
Actuator variant and accessories M106

- Voltage: 24 VAC

Circuit diagram



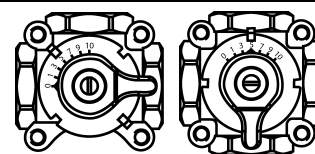
MC106Y



M106

Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



BRGMMD

BRGMMV

Technical data actuator M125

Type		M125
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	25
Power supply	VAC	230 +6% -10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	6.5
Input signal		3-point
Output signal		-

Enclosure protection: IP 43

Operating mode: S1-100% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

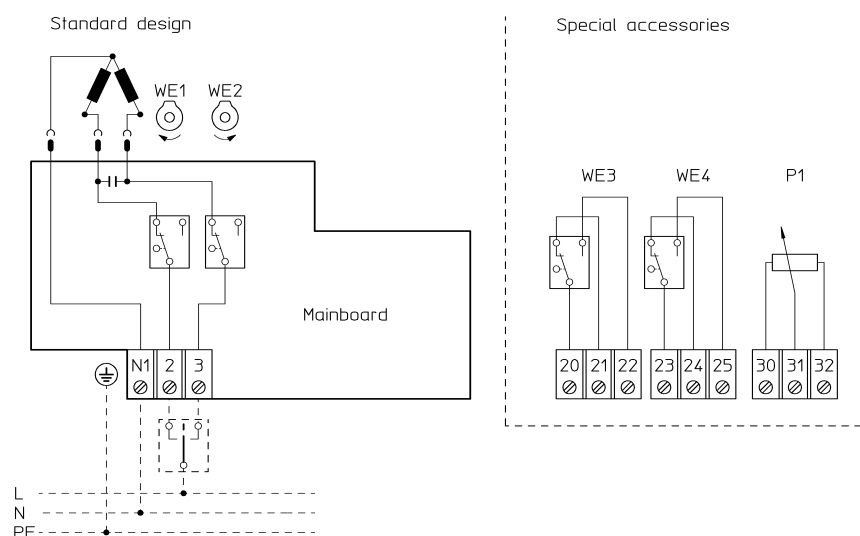
Ambient temperature: 0...+50°C

Weight: 1.2 kg

Actuator variant and accessories

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: 10 A / 250 VAC
- Potentiometer with attachment: 0.2 / 1 / 10 kOhm (1.5 VA)

Circuit diagram

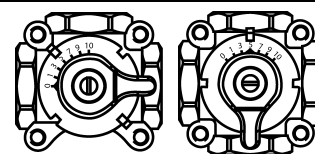


Three-way and four-way threaded mixing valves

PN 10 **6.1.1**

Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



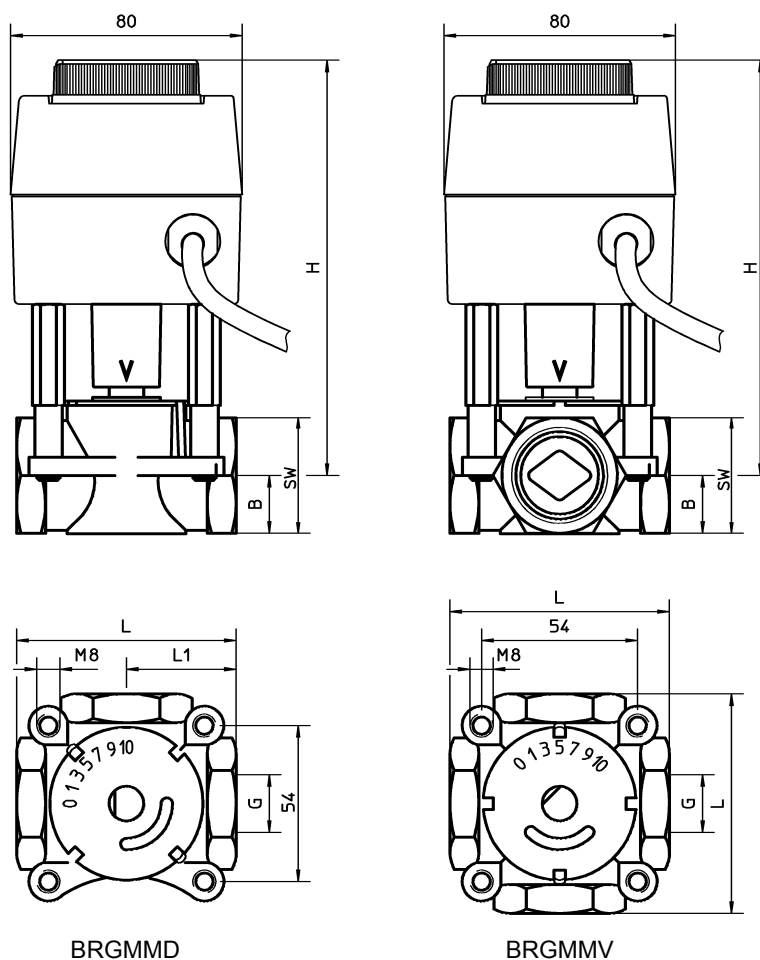
BRGMMD

BRGMMV

Technical data mixing valve with actuator

DN			20		25	32	40	50
kvs-value	m³/h		4	6	12	18	28	44
MC106Y	Actuating time ¹⁾	s	80*					
			150					
M106	Actuating time	s	130					
M125	Actuating time	s	130					

Drawing



BRGMMD

MC106Y
M106

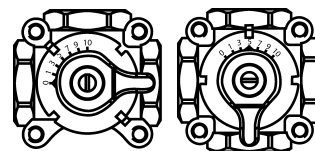
BRGMMV

Three-way and four-way threaded mixing valves

PN 10 **6.1.1**

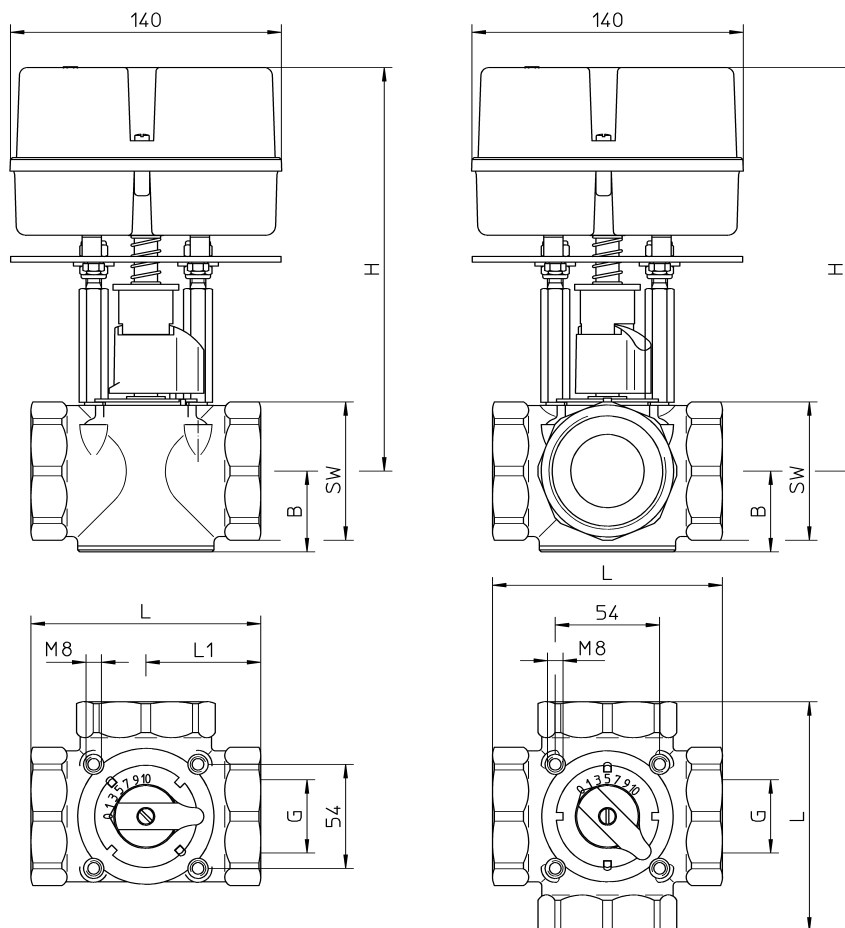
Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



BRGMMD

BRGMMV



BRGMMD

BRGMMV

M125

Dimension

DN		20	25	32	40	50
G		Rp ¾	Rp 1	Rp 1 ¼	Rp 1 ½	Rp 2
L	mm	76	76	82	112	119
L1	mm	38	38	41	56	59,5
B	mm	20	20	25	42	42
SW	mm	40	40	50	68	68
H	MC106Y/M106 mm	145	145	145	155	155
	M125 mm	198	198	198	210	210
m	MC106Y/M106 kg	1.1	1.1	1.3	3.5	3.5
	M125 kg	2.0	2.0	2.2	4.4	4.4

01/06/2009 Data subject to change without notice

6.1.1
5/6

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Helleforthstraße 58-60
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Germany



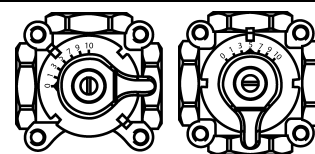
Excellence is our standard

Three-way and four-way threaded mixing valves

PN 10 **6.1.1**

Internal screwed connection
PN 10
Brass

with electric actuators
MC106Y
M106
M125



BRGMMD

BRGMMV

Examples of installation

Fig. 1

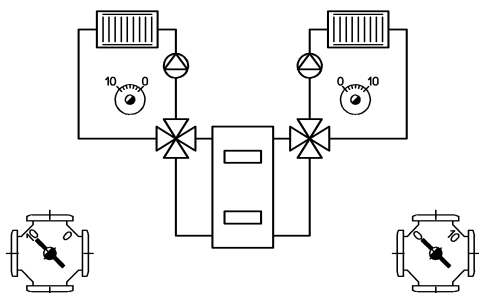


Fig. 2

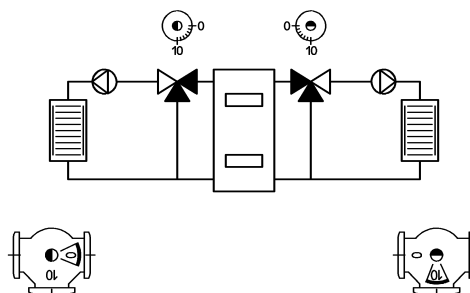


Fig. 3

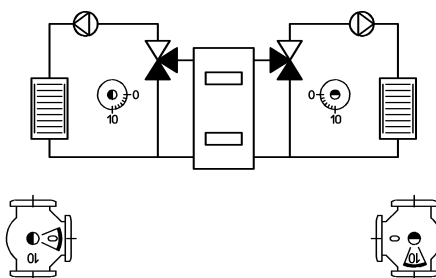


Fig. 4

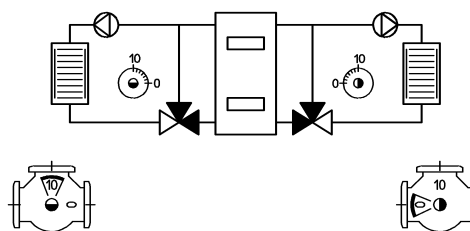


Fig. 5

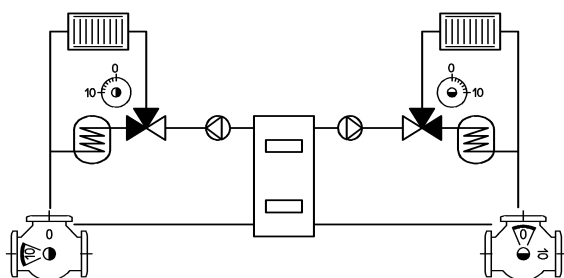


Fig. 6

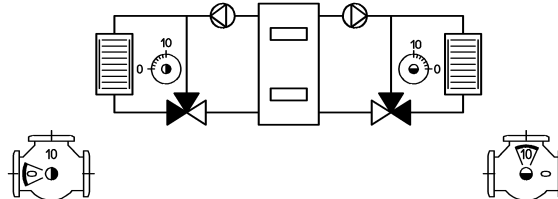
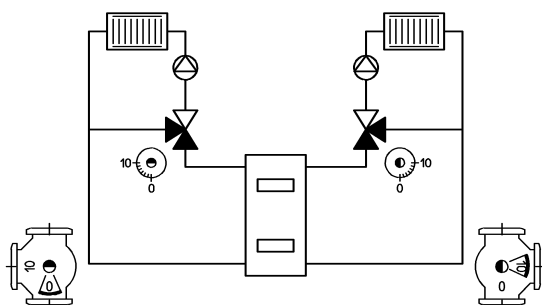
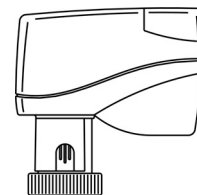


Fig. 7



with microcontroller
for two-way and three-way valves
BR216MZ • BR316MZ



MC15

Features

- Microprocessor controlled
- Automatic self-calibration on start up
- Wear-free distance measuring system
- Wire break recognition in 2...10 VDC operation
- Shockproof at 230 VAC, no protective conductor (PE) necessary
- Manual override by hexkeys
- Mechanical position indication
- Operating voltage interrupted in manual operation

Technical data

Type		MC15/24	MC15/230
Actuating time	s/mm	20	20
Actuating thrust	kN	0.15	0.15
Stroke	mm	9	9
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ¹⁾	VDC	24 ±10%	
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	2.5	2.5
Input signal		3-point 0(2)...10 VDC	3-point

Enclosure protection: IP 40

Mains connection: 1.5 m flexible cable, 0.5mm², with wire end ferrule

Operating mode: S3 - 100 % ED

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

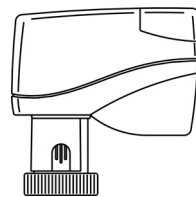
Weight: 0.18 kg

¹⁾ only rectified alternating voltage

Electric actuators

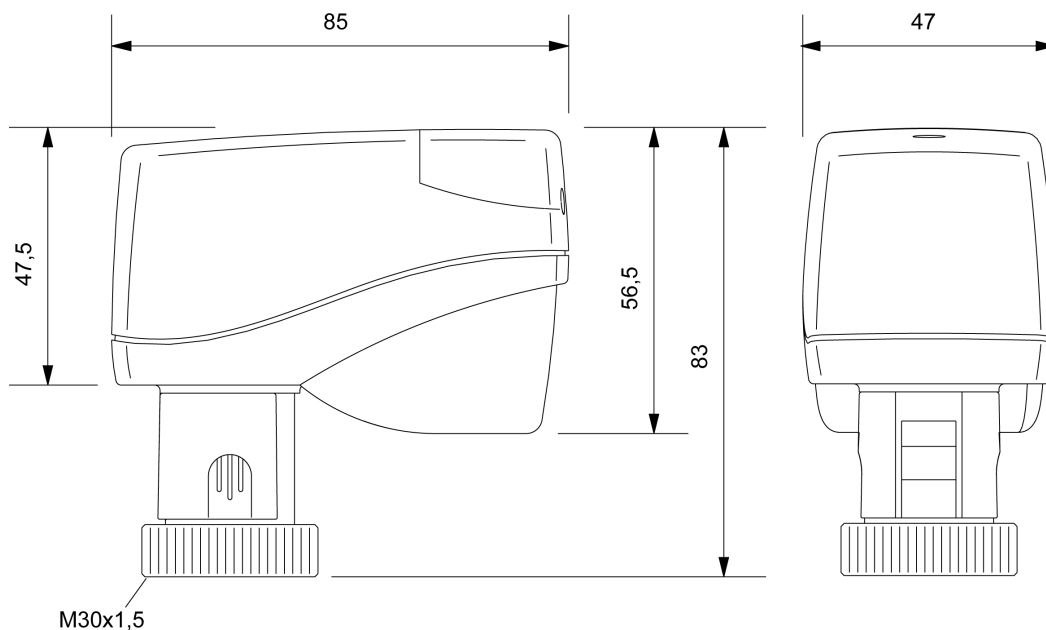
0.15 kN **7.1.1**

with microcontroller
for two-way and three-way valves
BR216MZ • BR316MZ

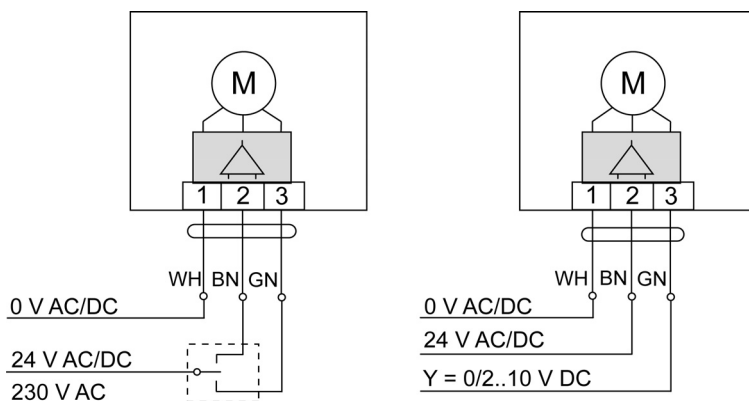


MC15

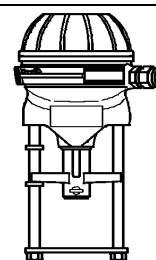
Drawing



Wiring



with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF



MC55
MC65

Features

- Microprocessor controlled
- Automatic self-calibration on start up
- Wear-free distance measuring system - no potentiometer
- Wire break recognition in 2...10 VDC operation
- Safety position for switching a binary signal (frost safety)
- Input signal Y and output signal X simultaneously reversible
- Hysteresis 0.3 V in continuous operation (fixed value)
- Shockproof at 230 VAC, no protective conductor (PE) necessary
- Manual override by hand wheel
- Mechanical position indication
- Operating voltage interrupted in manual operation

Technical data

Type		MC55/24	MC65/24	MC55/230	MC65/230	MC55Y	MC65Y
Actuating time ¹⁾	s/mm	9 · 5*		9 · 5*		9 · 5*	
Actuating thrust	kN	0.6		0.6		0.6	
Stroke	mm	max. 14	max. 20	max. 14	max. 20	max. 14	max. 20
Power supply	VAC	24 ±10%		230 +6% -10%		24 ±10%	
Power supply ²⁾	VDC	24 ±10%				24 ±10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%		50/60 ±5%	
Power consumption	VA	3.5		7		3.5	
Input signal ³⁾		3-point		3-point		0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm		0...10 VDC max. 8 mA min. 1200 Ohm	
Hysteresis	V	0.3		0.3		0.3	

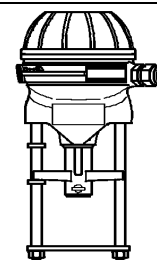
Enclosure protection:	IP 54 in automatic operation IP 30 in manual operation		
Resolution:	electric	0.04 VDC	
	mechanical	0.06 mm	
Mains connection:	Actuator with terminal		
Operating mode:	S3-50% ED c/h 1200	EN 60034-1	
End position switch-off:	load-dependent		
Ambient temperature:	0...+60°C		
Weight:	1.5 kg		

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF

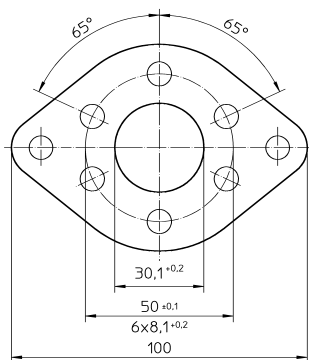
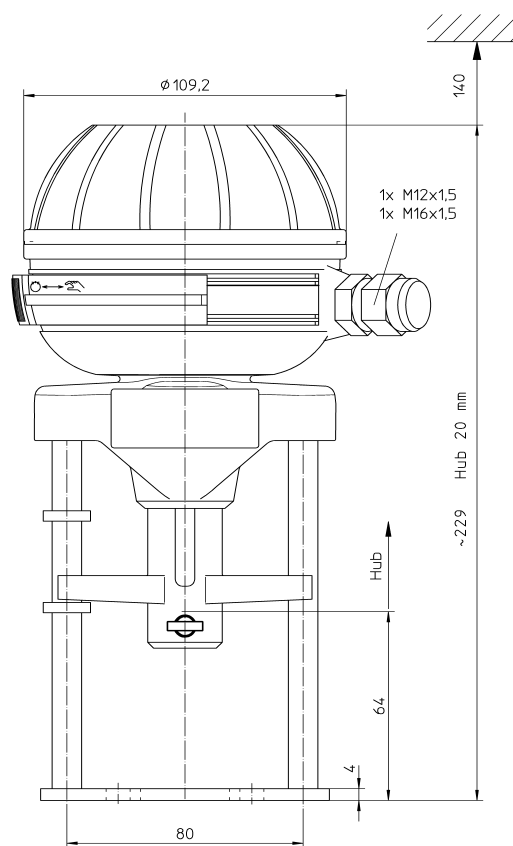
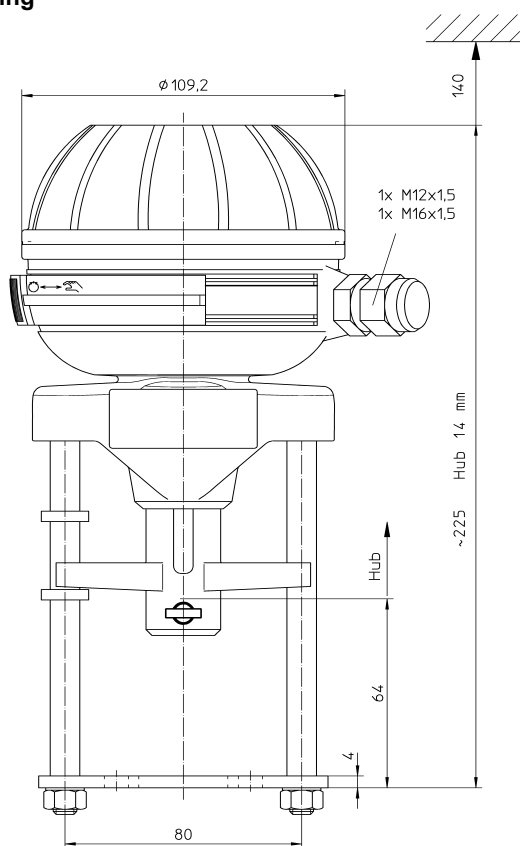


MC55
MC65

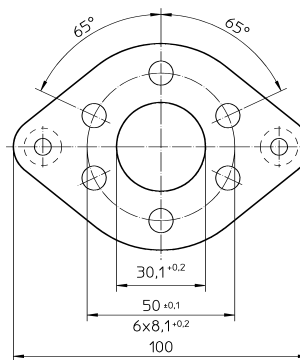
Actuator variant and accessories

- Voltage: 115 VAC
- Adapter with coupling for external products

Drawing

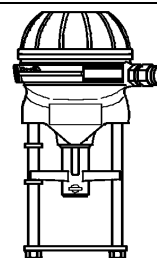


MC55



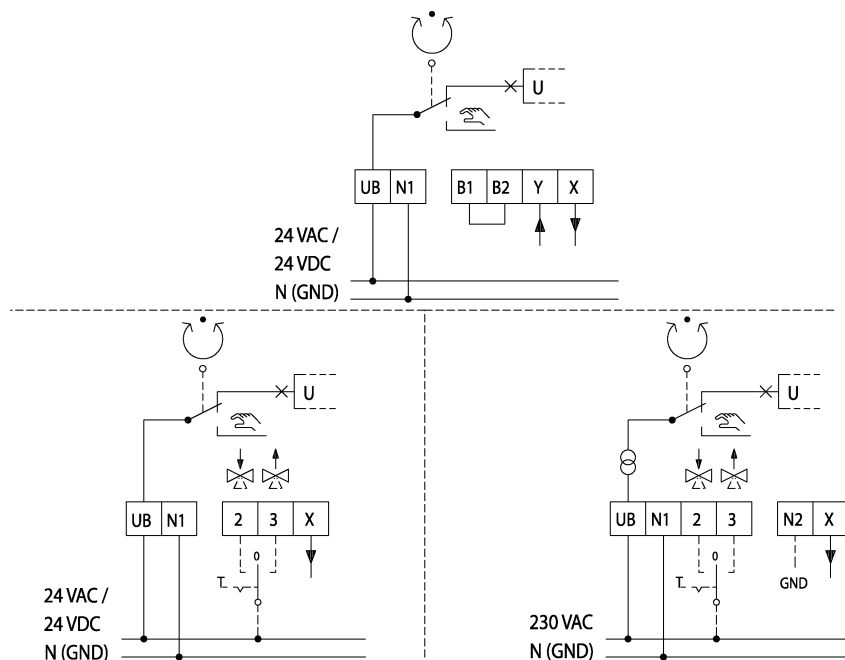
MC65

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF



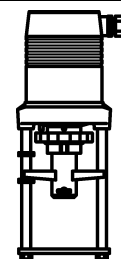
MC55
MC65

Circuit diagram



B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC100

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC100/24	MC100/230
Actuating time ¹⁾	s/mm	12 · 9* · 4 · 1.9	12 · 9* · 4 · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.095 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 2.5 kg

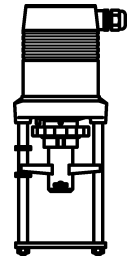
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF

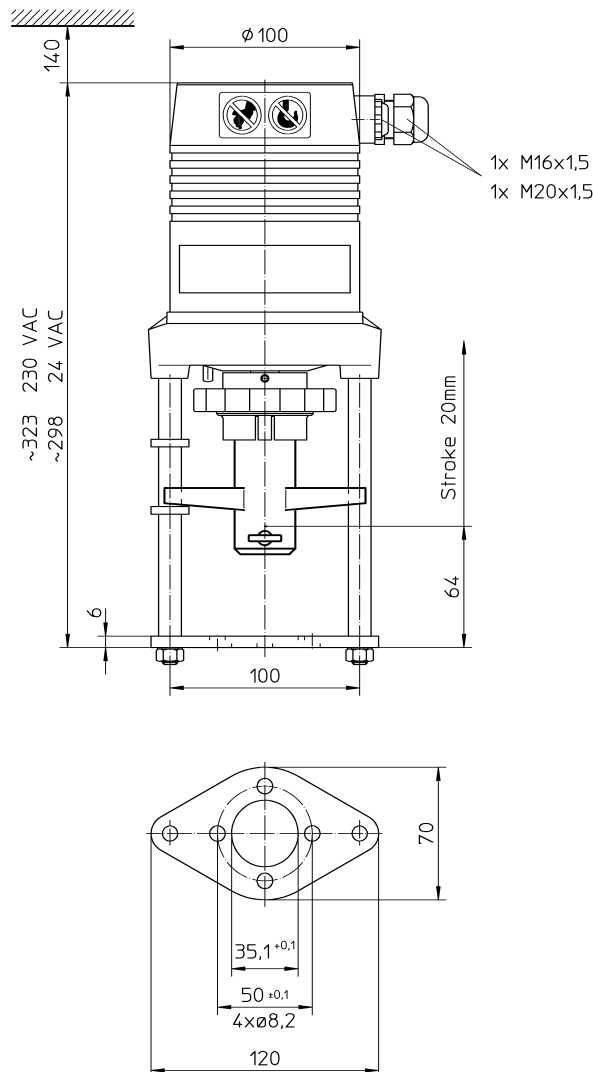


MC100

Actuator variant and accessories

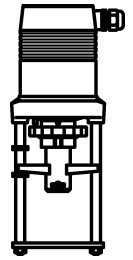
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



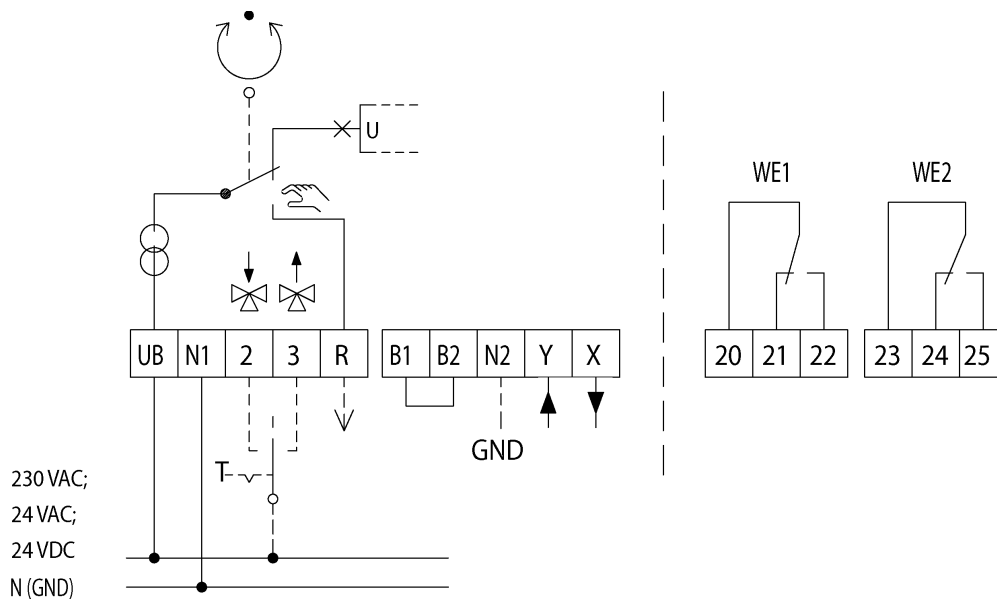
¹⁾ Position switch unit and output signal 0(4)...20 mA not in combination

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC100

Circuit diagram



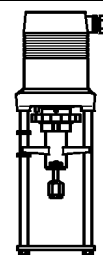
R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC103

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC103/24 ⁵⁾	MC103/230 ⁵⁾
Actuating time ¹⁾	s/mm	12 · 9 · 4* · 1.9	12 · 9 · 4* · 1.9
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.15 · 0.5	0.15 · 0.5

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.095 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 2.5 kg

¹⁾ Actuating time freely adjustable, presetting is marked with *

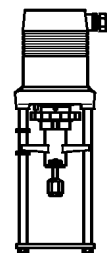
²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

⁵⁾ Actuator suitable for medium temperature up to 150°C

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

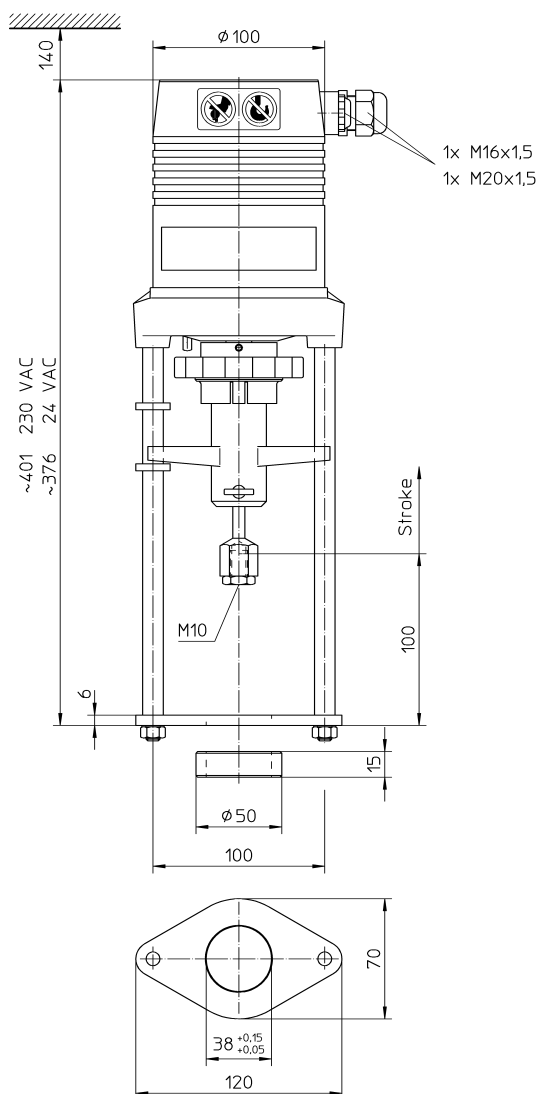


MC103

Actuator variant and accessories

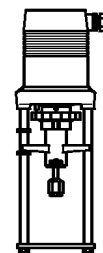
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



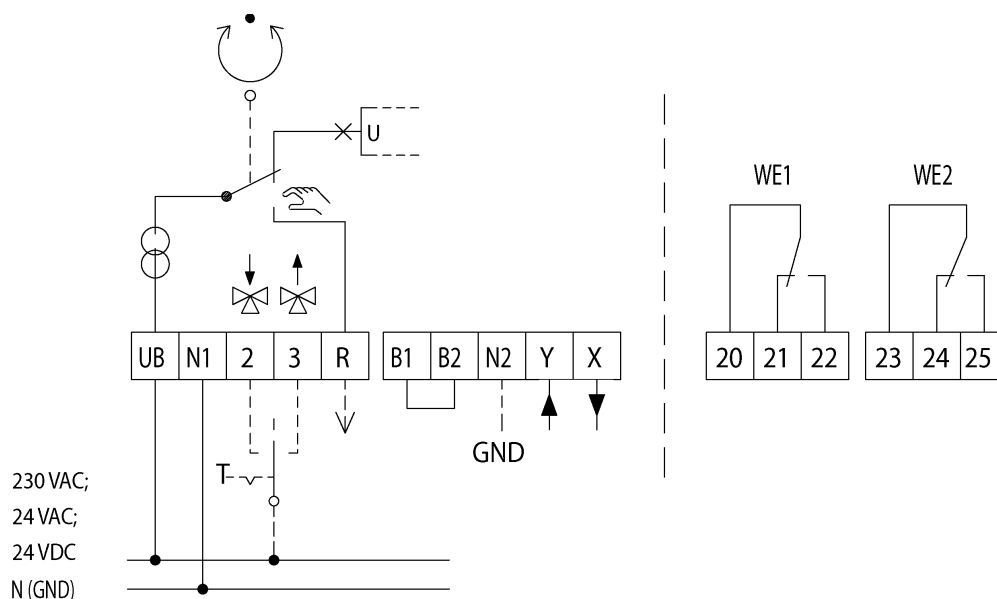
¹⁾ Position switch unit and output signal 0(4)...20 mA not in combination

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC103

Circuit diagram



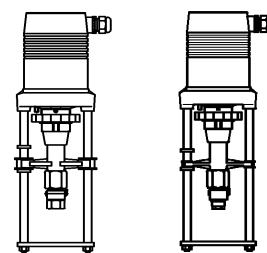
R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC161

MC160

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC160/24	MC161/24	MC160/230	MC161/230
Actuating time ¹⁾	s/mm	6 · 4*		6 · 4*	
Actuating thrust	kN	1.6		1.6	
Stroke	mm	max. 30	max. 20	max. 30	max. 20
Power supply	VAC	24 ±10%		230 +6% -10%	
Power supply ²⁾	VDC	24 ±10%		-	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	6		12	
Input signal ³⁾		3-point 0(2)...10 VDC 0(4)...20 mA	77 kOhm 0.51 kOhm	3-point 0(2)...10 VDC 0(4)...20 mA	77 kOhm 0.51 kOhm
Output signal ³⁾		0...10 VDC	max. 8 mA min. 1200 Ohm	0...10 VDC	max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5		0.05 · 0.15 · 0.3 · 0.5	

Enclosure protection:	IP 54		
Resolution:	electric	0.04 VDC	
	mechanical	0.05 mm	
Operating mode:	S3-50% ED c/h 1200	EN 60034-1	
End position switch-off:	load-dependent		
Ambient temperature:	0...+60°C		
Weight:	3.2 kg		

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

7.1.5
1/3
Phone +49 (0) 52 07 / 89 03 - 0
Fax +49 (0) 52 07 / 89 03 - 80
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Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany

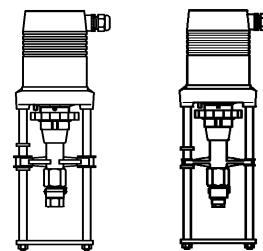


Excellence is our standard

Electric actuators

1.6 kN **7.1.5**

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



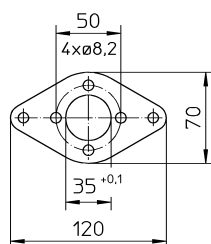
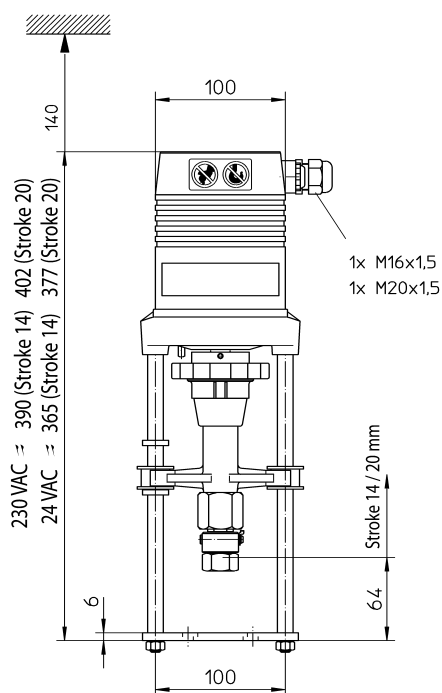
MC161

MC160

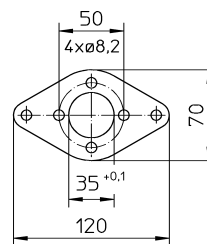
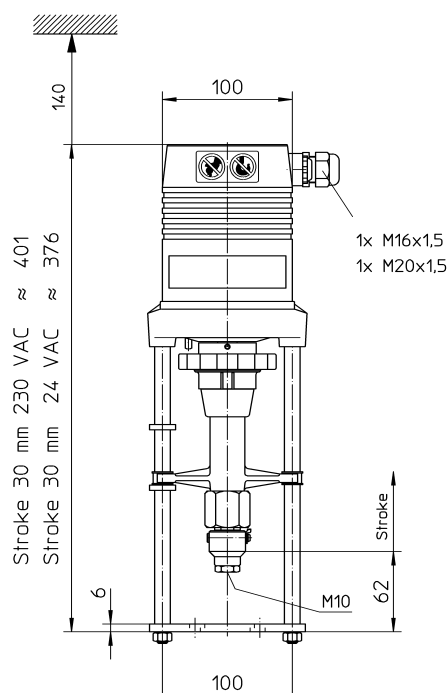
Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



MC161
DN 32 – DN 50



MC160
DN 65 – DN 100

¹⁾ Position switch unit and output signal not in combination

7.1.5
2/3

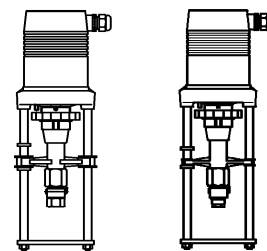
Phone +49 (0) 52 07 / 89 03 - 0
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Germany



Excellence is our standard

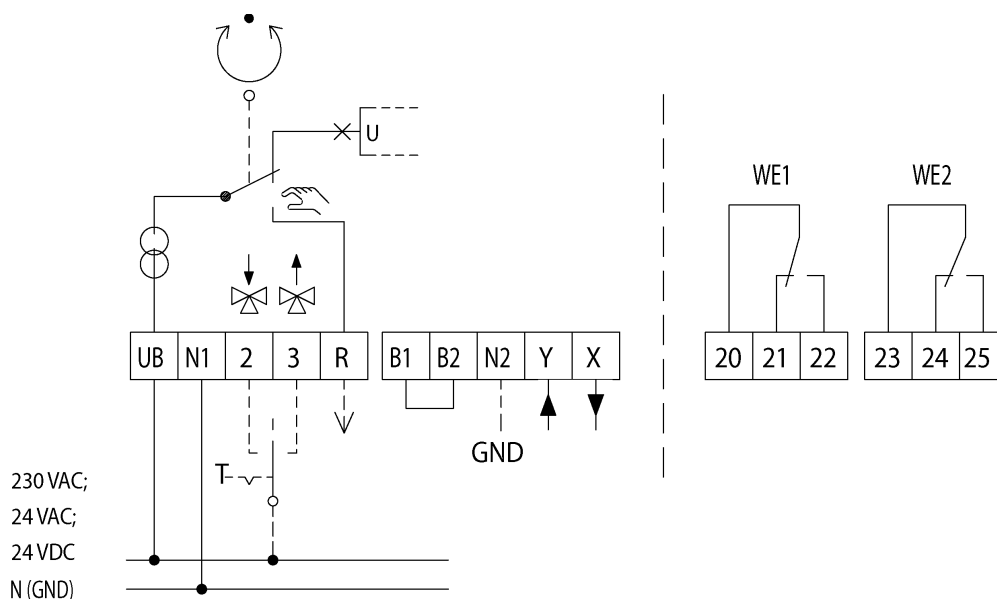
with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC161

MC160

Circuit diagram

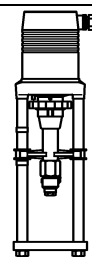


R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.
If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC163

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC163/24	MC163/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Actuating thrust	kN	1.6	1.6
Stroke	mm	max. 30	max. 30
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 4.0 kg

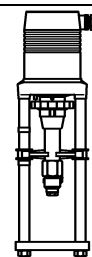
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only retified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

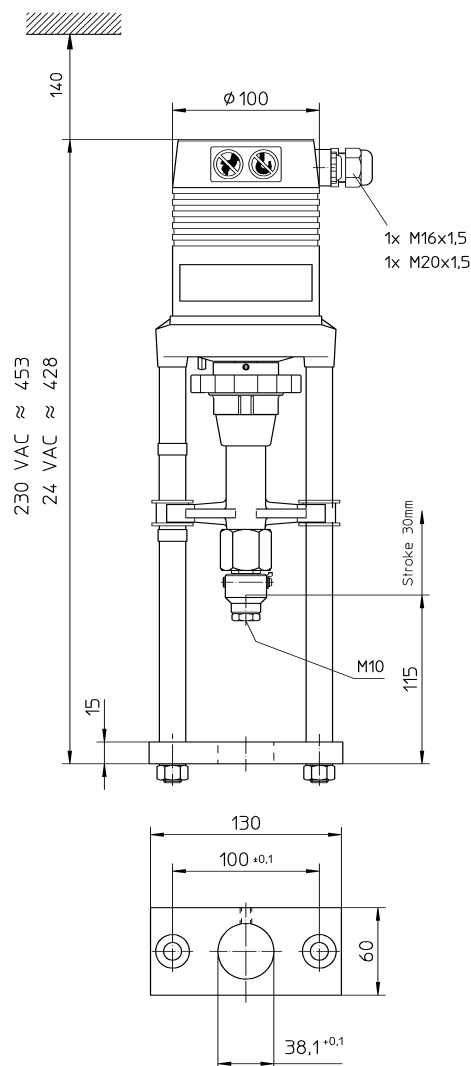


MC163

Actuator variant and accessories

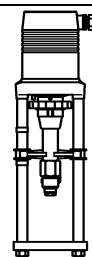
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



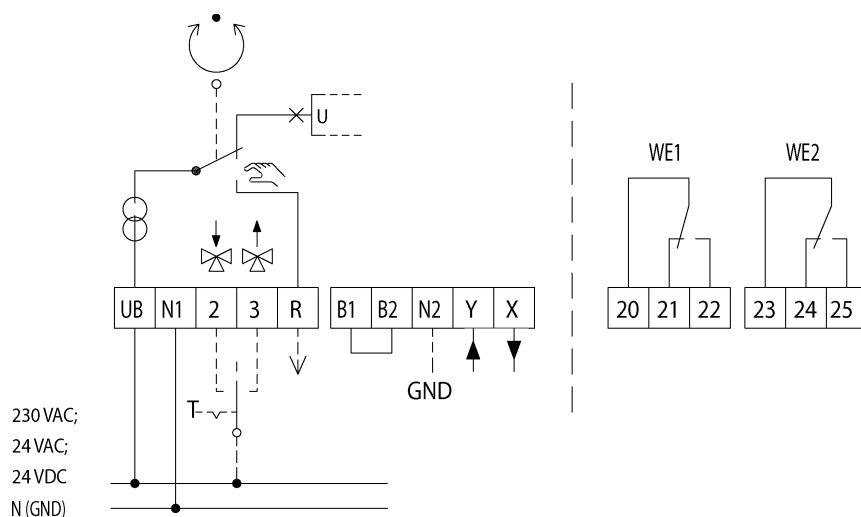
¹⁾ Position switch unit and output signal not in combination

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC163

Circuit diagram



R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



**MC250
MC400
MC500
MC1000**

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC250/24	MC250/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



MC250
MC400
MC500
MC1000

Type		MC400/24	MC400/230
Actuating time ¹⁾	s/mm	0,6 · 0,4*	0,6 · 0,4*
Actuating thrust	kN	4,0	4,0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 63
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0,05 · 0,15 · 0,3 · 0,5	0,05 · 0,15 · 0,3 · 0,5

Type		MC500/24	MC500/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	5.0	5.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



**MC250
MC400
MC500
MC1000**

Type		MC1000/24 ³⁾	MC1000/230 ³⁾
Actuating time	s/mm	1	1
Actuating thrust	kN	10	10
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 63
Input signal ¹⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ¹⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ²⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC250 / MC500 mechanical 0.04 mm
MC400 mechanical 0.12 mm
MC1000 mechanical 0.05 mm

Operating mode: MC250 / MC500 S3-50% ED c/h 1200 EN 60034-1
MC400 / MC1000 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: -10...+60°C

Weight: MC250/24 and MC500/24 7.0 kg
MC250/230 and MC500/230 8.2 kg
MC400 9.5 kg
MC1000 11.0 kg

¹⁾ Invertible input and output signal

²⁾ Freely adjustable

³⁾ only for BR216GF/BR316GF

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF

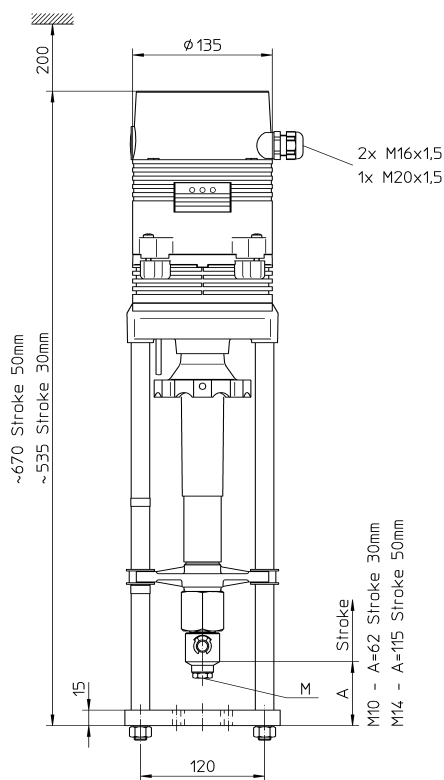


MC250
MC400
MC500
MC1000

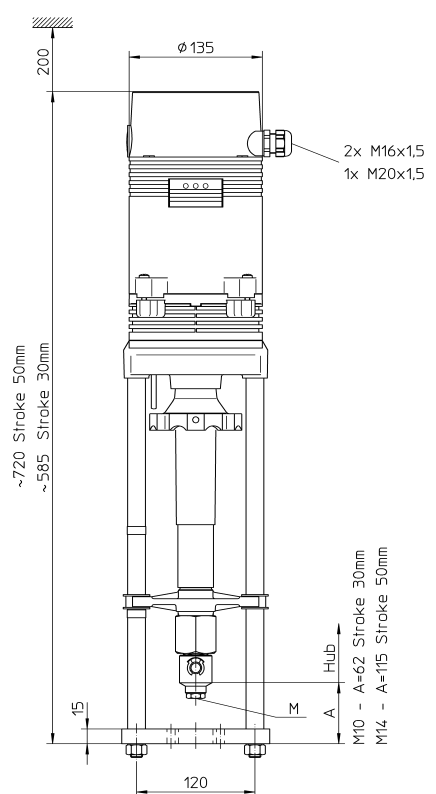
Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

Drawing



MC250 and MC500

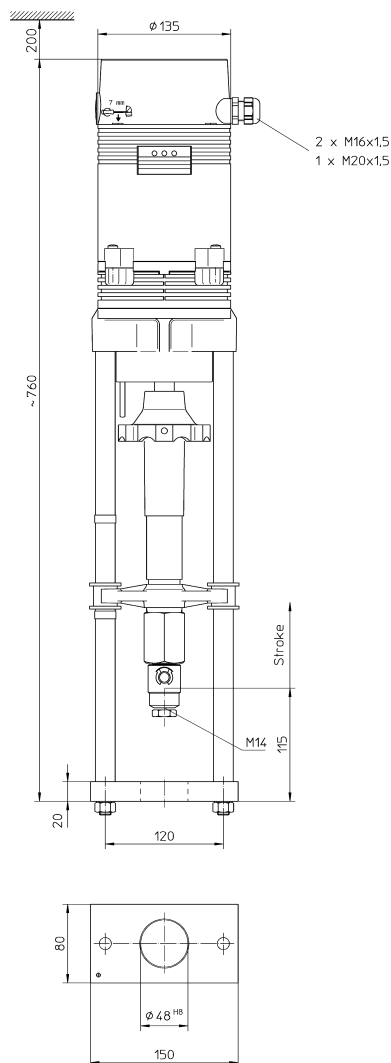


MC400

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



MC250
MC400
MC500
MC1000



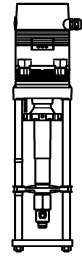
MC1000

01/06/2009 Data subject to change without notice

with microcontroller
for two-way and three-way valves

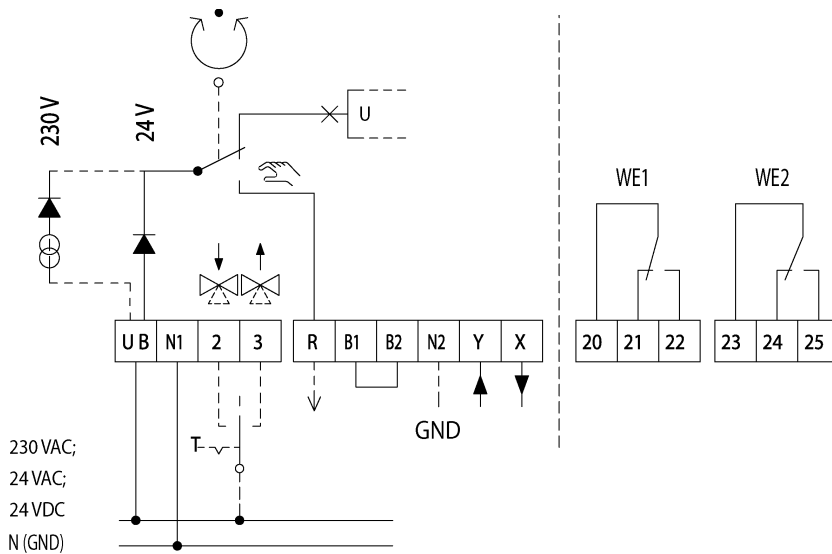
BR206GF • BR306GF

BR216GF • BR316GF



MC250
MC400
MC500
MC1000

Circuit diagram



R Feedback signal in „Manual“ mode of operation

R=24 VAC max.100 mA for actuators in 24 VAC design

R=24 VDC max.100 mA for actuators in 24 VDC design

R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC253/24	MC253/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.5*
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Type		MC403/24	MC403/230
Actuating time ¹⁾	s/mm	0.6 · 0.4*	0.6 · 0.4*
Actuating thrust	kN	4.0	4.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 50	max. 63
Input signal ³⁾		3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Type		MC503/24	MC503/230
Actuating time ¹⁾	s/mm	5 · 2.5*	5 · 2.*
Actuating thrust	kN	5.0	5.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 25
Input signal ³⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ⁴⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Type		MC1003/24	MC1503/24	MC1003/230	MC1503/230
Actuating time ¹⁾	s/mm	1	2	1	2
Actuating thrust	kN	10	15	10	15
Stroke	mm	max. 80		max. 80	
Power supply	VAC	24 ±10%		230 +6% -10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	max. 50		max. 63	
Input signal ²⁾		3-point 0(2)...10 VDC 0(4)...20 mA	77 kOhm 0.51 kOhm	3-point 0(2)...10 VDC 0(4)...20 mA	77 kOhm 0.51 kOhm
Output signal ²⁾		0...10 VDC	max. 8 mA min. 1200 Ohm	0...10 VDC	max. 8 mA min. 1200 Ohm
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5		0.05 · 0.15 · 0.3 · 0.5	

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC253 / MC503 mechanical 0.04 mm
MC403 mechanical 0.12 mm
MC1003 / MC1503 mechanical 0.05 mm

Operating mode: MC253 / MC503 S3-50% ED c/h 1200 EN 60034-1
MC403 / MC1003 / MC1503 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: MC253 / MC503 / MC403 / MC503 / MC1003 -10...+60°C
MC1503 -10...+50°C

Weight: MC253/24 and MC503/24 7.4 kg
MC253/230 and MC503/230 8.6 kg
MC403 9.5 kg
MC1003 / MC1503 11.5 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC or 8 A / 30 VDC
Turn-on voltage: max. 400 VAC / max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Invertible input and output signal

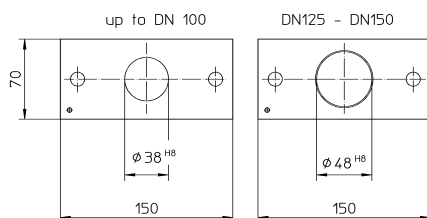
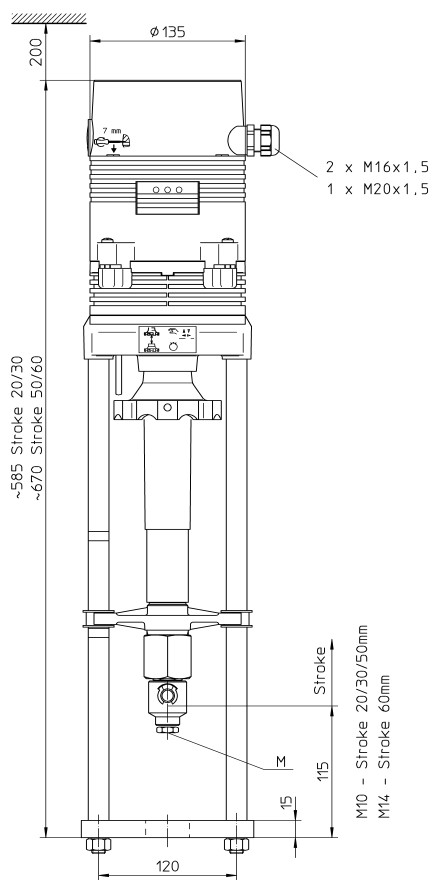
³⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

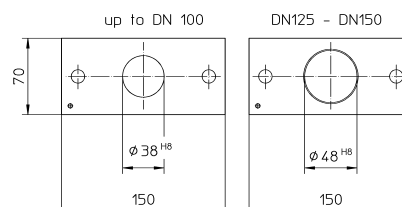
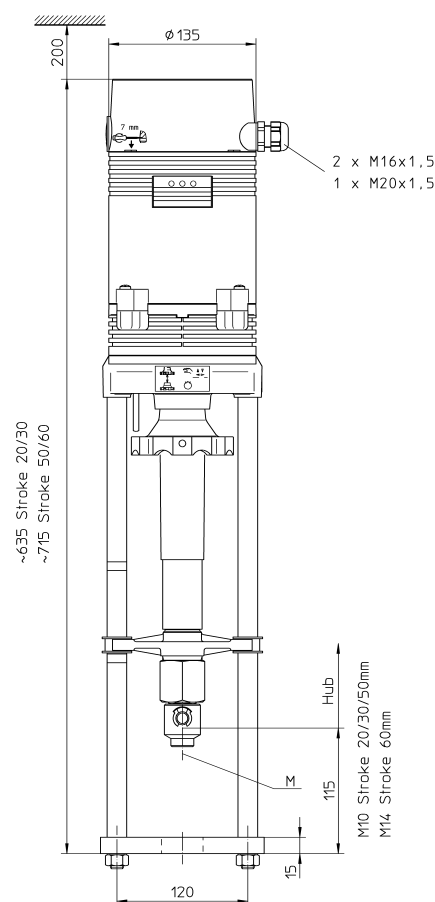


MC253
MC403
MC503
MC1003
MC1503

Drawing



MC253 and MC503

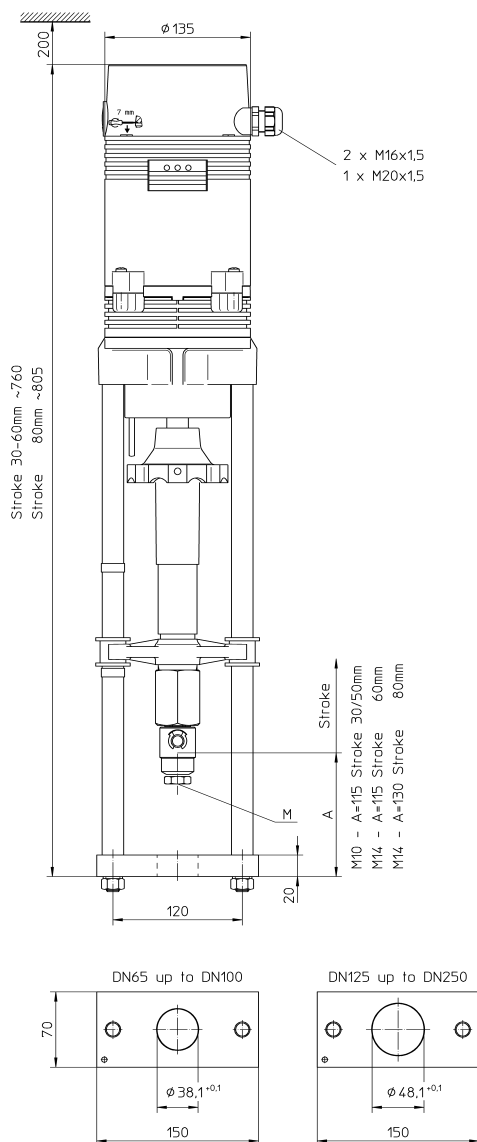


MC403

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503



MC1003
MC1503

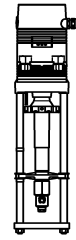
with microcontroller
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

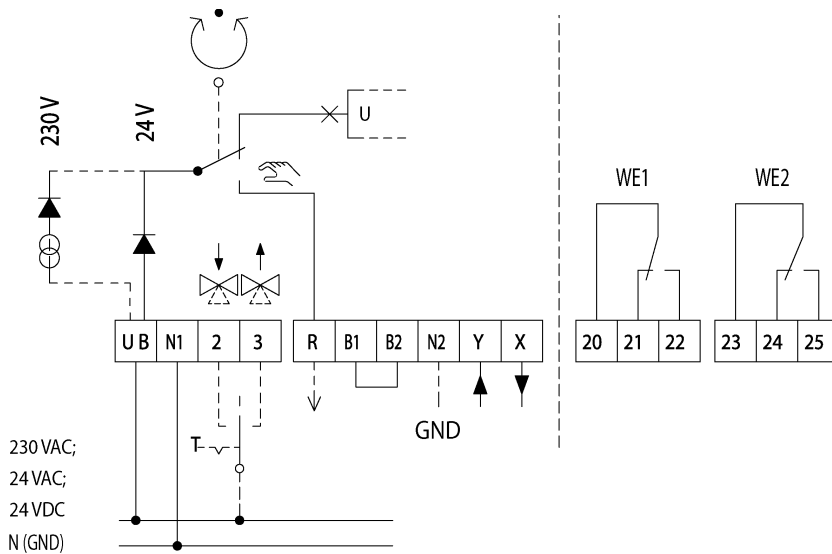
BR240S • BR340S

BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Circuit diagram



R Feedback signal in „Manual“ mode of operation

R=24 VAC max.100 mA for actuators in 24 VAC design

R=24 VDC max.100 mA for actuators in 24 VDC design

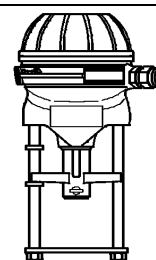
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost safety)

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF



MC55DL

Features

- Microprocessor controlled
- Wear-free distance measuring system - no potentiometer
- Shockproof at 230 VAC, no protective conductor (PE) necessary
- Manual override by hand wheel
- Mechanical position indication
- Operating voltage interrupted in manual operation

Technical data

Type		MC55DL/24	MC55DL/230
Actuating time ¹⁾	s/mm	9 · 5*	9 · 5*
Actuating thrust	kN	0.6	0.6
Stroke	mm	max. 14	max. 14
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	4.5	4.5
Input signal		3-point	3-point

Enclosure protection: IP 54 in automatic operation
IP 30 in manual operation

Resolution: mechanical 0.06 mm

Mains connection: Actuator with terminal

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 1.5 kg

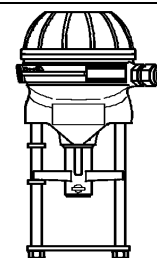
Actuator variant and accessories

- Adapter with coupling for external products

¹⁾ Actuating time freely adjustable, presetting is marked with *

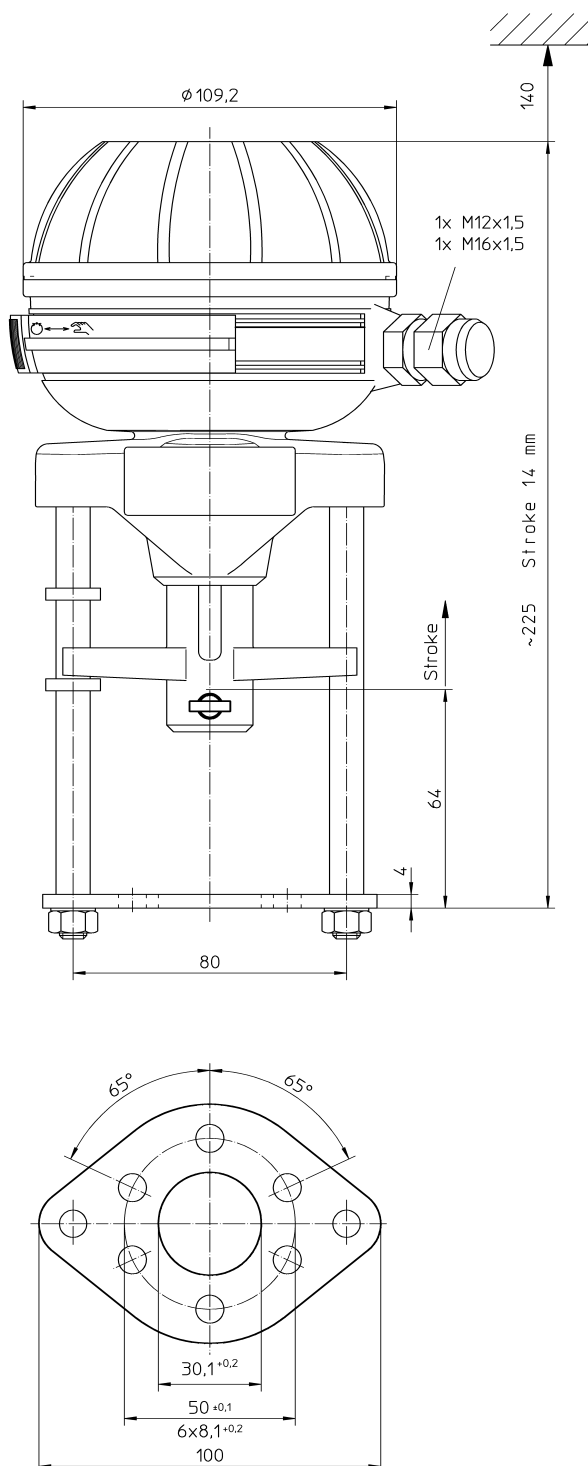
²⁾ only rectified alternating voltage

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF

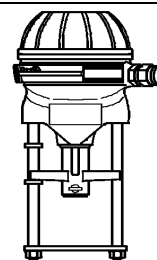


MC55DL

Drawing

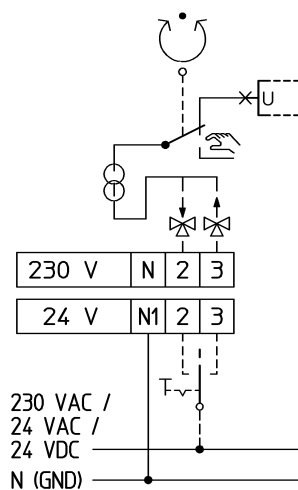


with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF

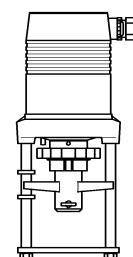


MC55DL

Circuit diagram



with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC80DL

Features

- Microprocessor controlled
- LED indication of actuator status
- Wear-free distance measuring system – no potentiometer
- Bonnet detachable in four positions, 90° locking, no screws required
- Pull-out manual adjustment with electrical cut-off
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC80DL/24	MC80DL/230
Actuating time ¹⁾	s/mm	4 · 2*	4 · 2*
Actuating thrust	kN	0.8	0.8
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal		3-point	3-point

Enclosure protection: IP54

Resolution: mechanical 0.095 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch off: load-dependent

Ambient temperature: 0...+60°C

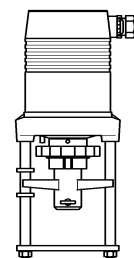
Weight: 2.5 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch (2 switches) for end position signal, potential free
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Adapter with coupling for external products

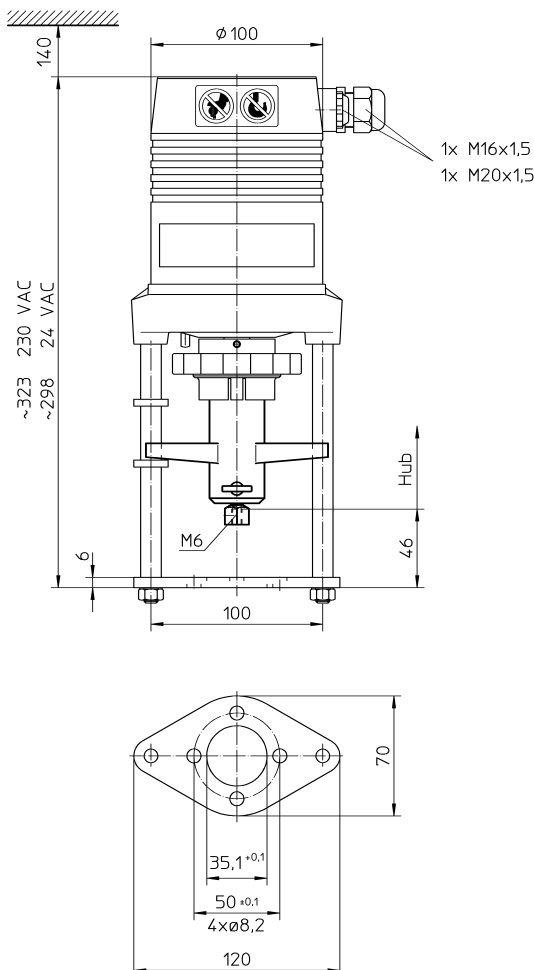
¹⁾ Actuating time freely adjustable, presetting is marked with *
²⁾ only retified alternating voltage

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF

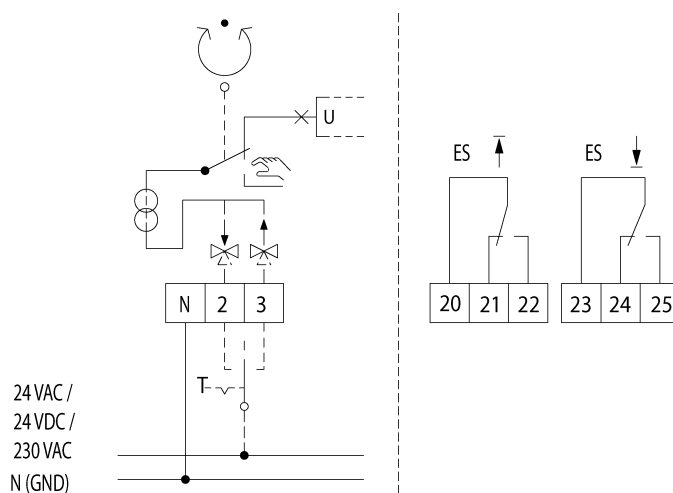


MC80DL

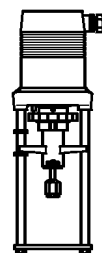
Drawing



Circuit diagram



with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC83DL

Features

- Microprocessor controlled
- LED indication of actuator status
- Wear-free distance measuring system – no potentiometer
- Bonnet detachable in four positions, 90° locking, no screws required
- Pull-out manual adjustment with electrical cut-off
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC83DL/24	MC83DL/230
Actuating time ¹⁾	s/mm	4 · 2*	4 · 2*
Actuating thrust	kN	0.8	0.8
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	6	12
Input signal		3-point	3-point

Enclosure protection: IP54

Resolution: mechanical 0.095 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch off: load-dependent

Ambient temperature: 0...+60°C

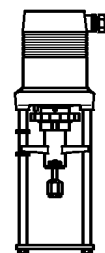
Weight: 2.5 kg

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch (2 switches) for end position signal, potential free
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Adapter with coupling for external products

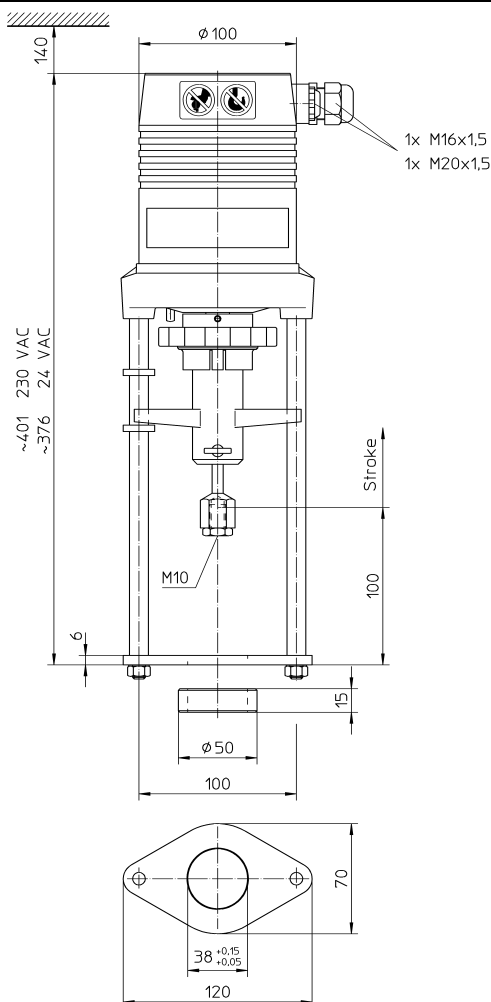
¹⁾ Actuating time freely adjustable, presetting is marked with *
²⁾ only rectified alternating voltage

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

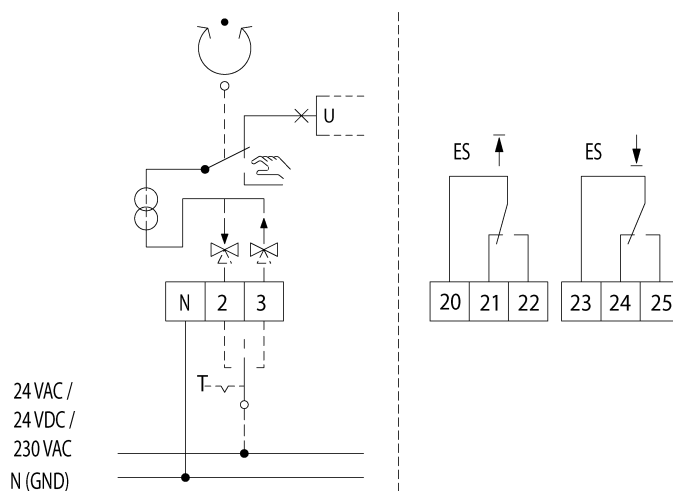


MC83DL

Drawing



Circuit diagram



with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253DL
MC503DL

Features

- Microprocessor controlled
- LED indication of actuator status
- Wear-free distance measuring system – no potentiometer
- Bonnet detachable in four positions, 90° locking, no screws required
- Pull-out manual adjustment with electrical cut-off
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

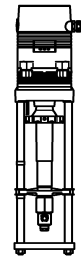
Type		MC253DL/24	MC253DL/230
Actuating time ¹⁾	s/mm	6.5 · 5*	6.5 · 5*
Actuating thrust	kN	2.5	2.5
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 30
Input signal		3-point	3-point

Type		MC503DL/24	MC503DL/230
Actuating time ¹⁾	s/mm	6.5 · 5*	6.5 · 5*
Actuating thrust	kN	5.0	5.0
Stroke	mm	max. 60	max. 60
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 18	max. 30
Input signal		3-point	3-point

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253DL
MC503DL

Enclosure protection:	IP 54	
Resolution:	mechanical	0.04 mm
Operating mode:	S3-50% ED c/h 1200	EN 60034-1
End position switch-off:	load-dependent	
Ambient temperature:	-10...+60°C	
Weight:	MC253DL/24 and MC503DL/24	7.4 kg
	MC253DL/230 and MC503DL/230	8.6 kg

Actuator variant and accessories

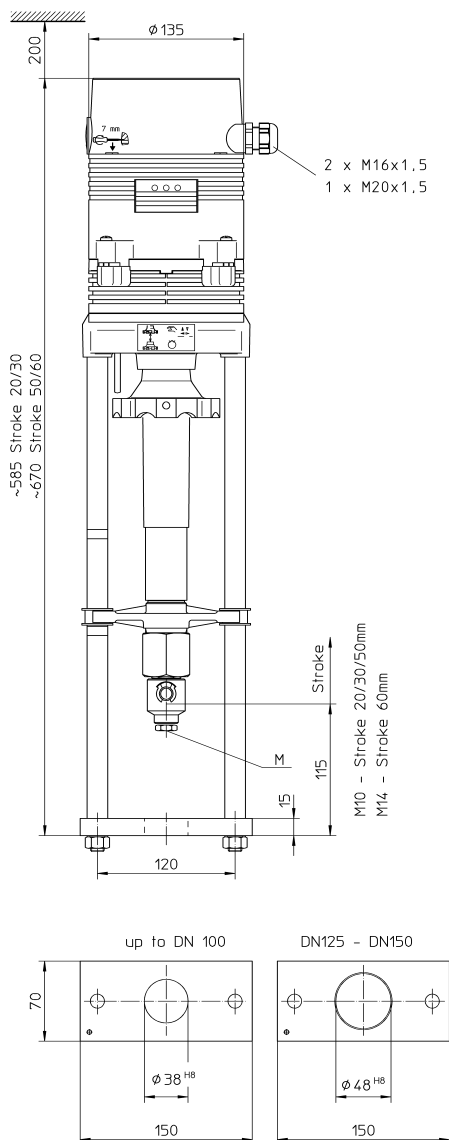
- Voltage: 115 VAC
- Position switch (2 switches) for end position signal, potential free
 - Rated load: 8 A / 250 VAC
8 A / 30 VDC
 - Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Adapter with coupling for external products

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

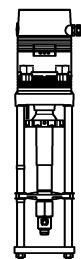


MC253DL
MC503DL

Drawing

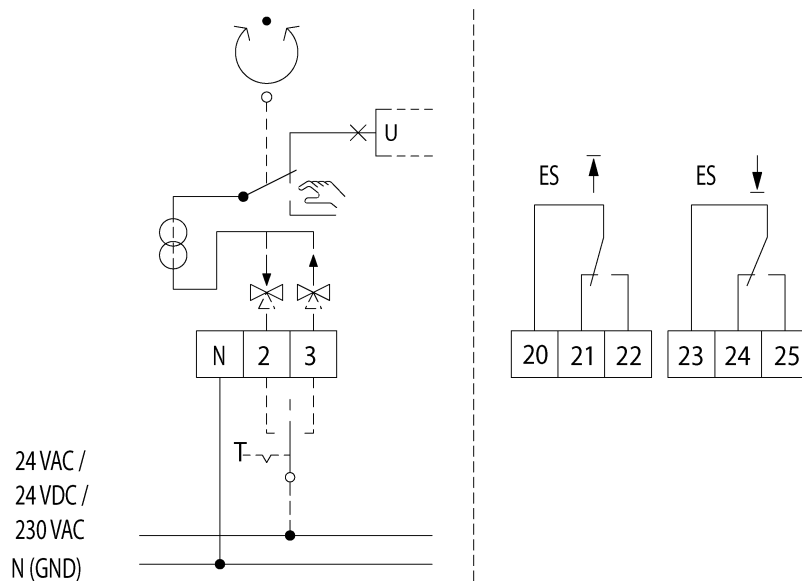


with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

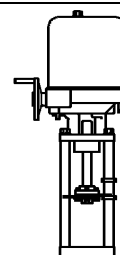


MC253DL
MC503DL

Circuit diagram



Control: 3-point or modulating
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



M300(Y) - 20 kN
M300(Y) - 25 kN

Features

- Maintenance free reversible motor with overload protection
- Manual override with a disengagement feature
- Mechanical position indication

Technical data actuator

Type		M300 – 20 kN		M300Y – 20 kN	
Actuating time at 50 Hz ¹⁾	s/mm	1.2	2.4	1.2	2.4
Actuating thrust	kN	20		20	
Stroke	mm	max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%	
Frequency	Hz	50 or 60 ±5%		50 or 60 ±5%	
Power consumption	VA	240	170	260	190
Input signal ²⁾		3-point		0(2)...10 VDC 0(4)...20 mA ¹⁾	10 kOhm 500 Ohm
Output signal		-		0(2)...10 VDC 0(4)...20 mA ¹⁾	max. 20 mA min. 500 Ohm max. 500 Ohm

Type		M300 – 25 kN		M300Y – 25 kN	
Actuating time at 50 Hz ¹⁾	s/mm	1.2	2.4	1.2	2.4
Actuating thrust	kN	25		25	
Stroke	mm	max. 90		max. 90	
Power supply	VAC	230 ±10%		230 ±10%	
Frequency	Hz	50 or 60 ±5%		50 or 60 ±5%	
Power consumption	VA	240	170	260	190
Input signal ²⁾		3-point		0(2)...10 VDC 0(4)...20 mA ¹⁾	10 kOhm 500 Ohm
Output signal		-		0(2)...10 VDC 0(4)...20 mA ¹⁾	max. 20 mA min. 500 Ohm max. 500 Ohm

Enclosure protection: IP 65

Limit switches (motor): max. rated load: resistive load: 10 A
inductive load: 5 A

Operating mode: S4-30% ED c/h 600 EN 60034-1

End position switch-off: Two-way valves: Extending actuator spindle: load-dependent
Retracting actuator spindle: travel (WE-S3) and load-depend.
Three-way valves: Extending and retracting actuator spindle: load-dependent

Ambient temperature: 0...+60°C

Weight: 22 kg

¹⁾ Please state when ordering

²⁾ Invertible input signal

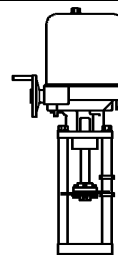
Control: 3-point or modulating
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

BR240S • BR340S

BR240E • BR340E

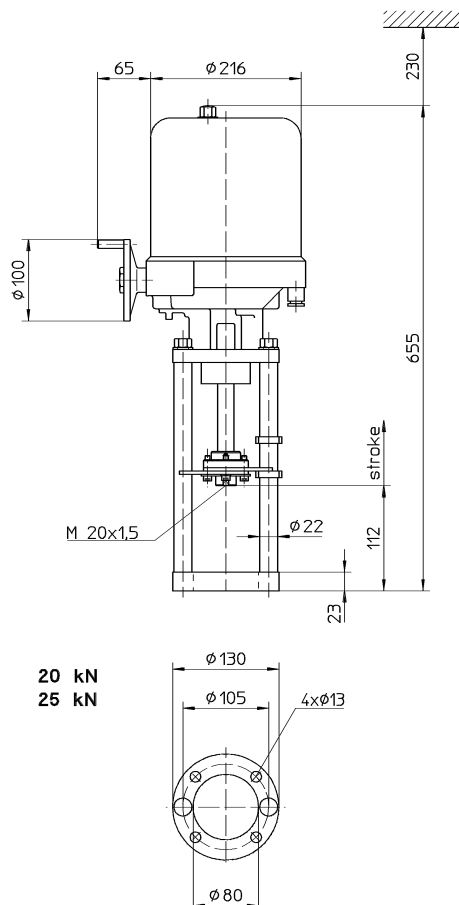


M300(Y) - 20 kN
M300(Y) - 25 kN

Actuator variant and accessories

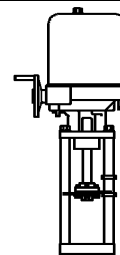
Type	M300 20 kN	M300 25 kN	M300Y 20 kN	M300Y 25 kN
Potentiometer (max. 2 pieces) 0,1 / 0,2 / 0,5 / 1 / 5 / 10 kOhm 1,5 VA	•	•		
Position switch unit 2 switches (WE-S4/WE-S5), max. 250 VAC potential free, infinitely adjustable max. rated load: resistive load 5 A inductive load 3 A filament lamp 1 A	•	•	•	•
Heater -20°C ... +60°C 230 VAC, 15 VA	•	•	•	•
Electric position indication Voltage: 24 VDC Output signal: X=0(4)...20 mA max. 500 Ohm	•	•		

Drawing



20 kN
25 kN

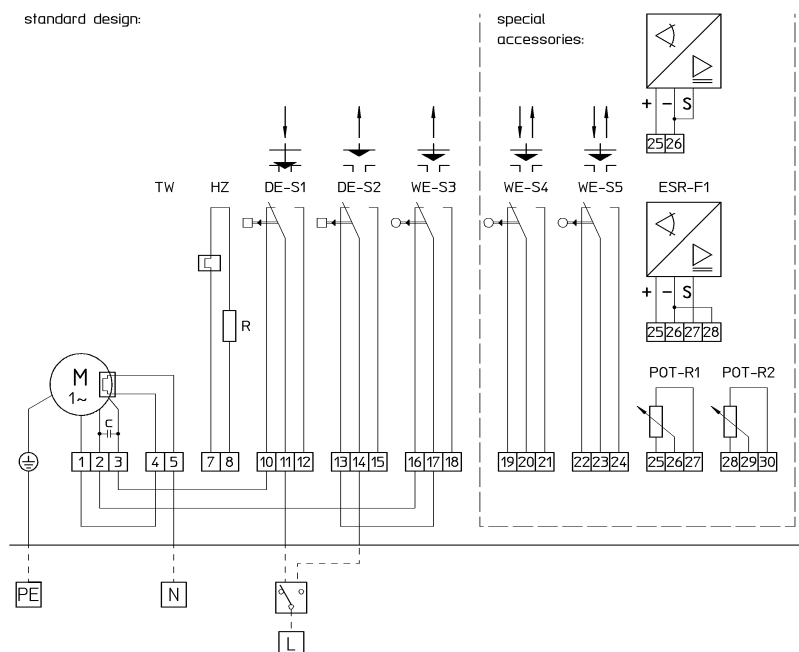
Control: 3-point or modulating
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



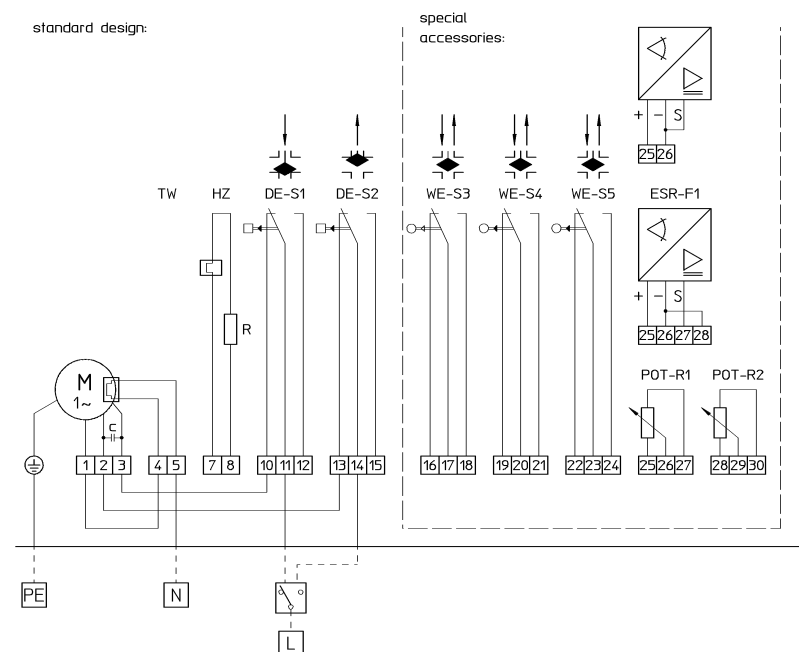
M300(Y) - 20 kN
M300(Y) - 25 kN

Circuit diagram M300 - 20 kN / M300 - 25 kN

Two-way valves



Three-way valves



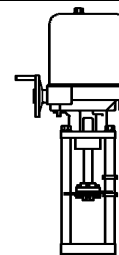
Control: 3-point or modulating
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

BR240S • BR340S

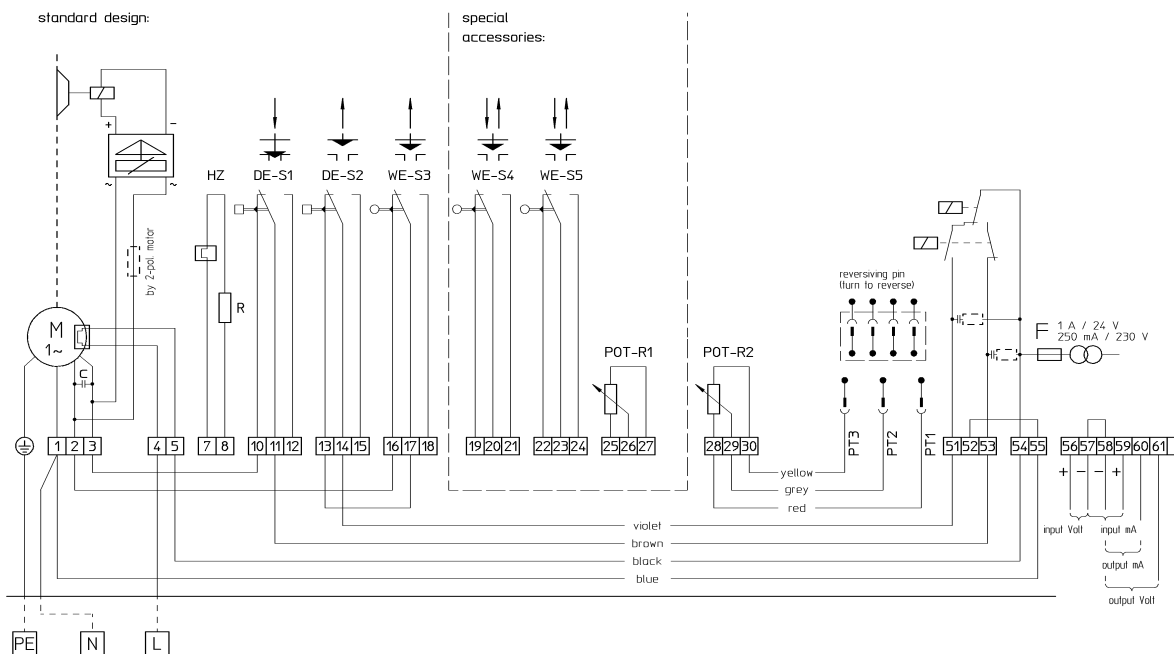
BR240E • BR340E



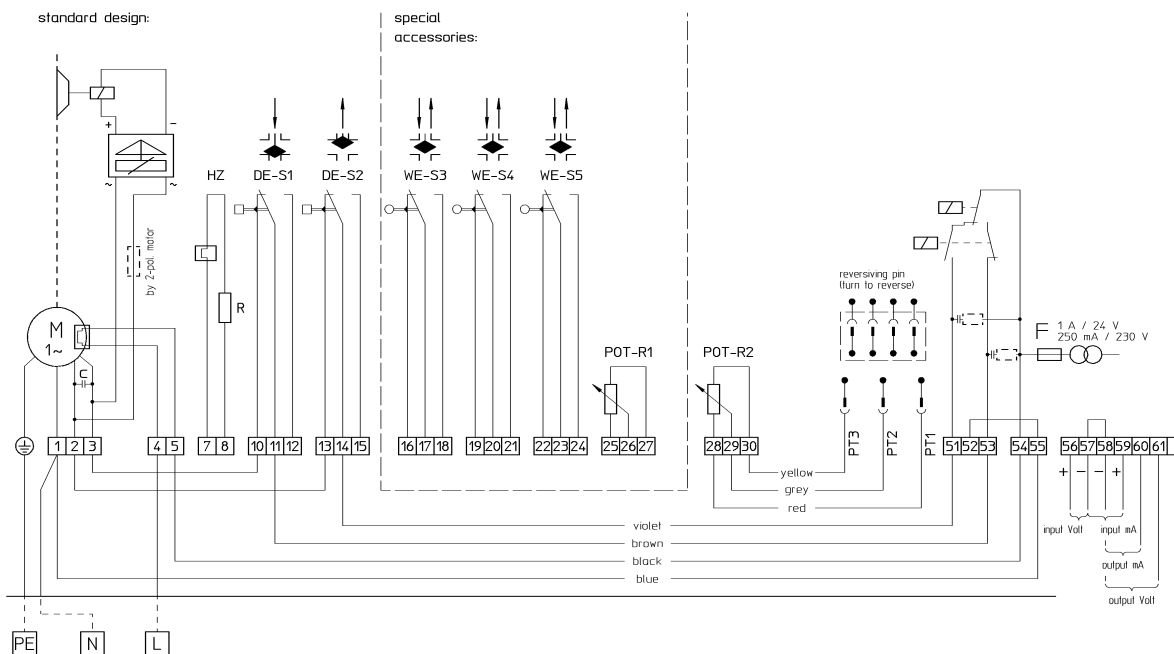
M300(Y) - 20 kN
M300(Y) - 25 kN

Circuit diagram M300Y - 20 kN / M300Y - 25 kN

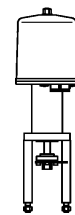
Two-way valves



Three-way valves



Control: 3-point or modulating
BR225
BR240S
BR240E



M2.2(Y)
M2.3(Y)

Features

- Electric Linear Actuator with Fail-safe function
- Stem can be extended or retracted on power failure
- Electrical manual override operation

Technical data actuator

Type		M2.2	M2.2Y
Actuating time at 50 Hz	s/mm	3	3
Fail-safe time	s/mm	0.3	0.3
Actuating thrust	kN	2.2	2.2
Stroke	mm	max. 30	max. 30
Power supply	VAC	230 +6% -10%	24 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	24	24
Input signal ²⁾		3-point	0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm
Output signal		-	0(2)...10 VDC max. 10 mA 0(4)...20 mA ¹⁾ min. 1200 Ohm

Type		M2.3	M2.3Y
Actuating time at 50 Hz	s/mm	3	3
Fail-safe time	s/mm	0.3	0.3
Actuating thrust	kN	2.2	2.2
Stroke	mm	max. 40	max. 40
Power supply	VAC	230 +6% -10%	24 ±10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	24	24
Input signal ²⁾		3-point	0(2)...10 VDC 10 kOhm 0(4)...20 mA ¹⁾ 500 Ohm
Output signal		-	0(2)...10 VDC max. 10 mA 0(4)...20 mA ¹⁾ min. 1200 Ohm

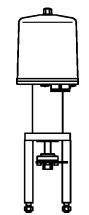
Enclosure protection: IP 54

Fail-safe function: M2.2(Y) / M2.3(Y) stem extended on power failure (TÜV-tested)
M2.2(Y)-R / M2.3(Y)-R stem retracted on power failure (TÜV-tested)

¹⁾ Please state when ordering

²⁾ Invertible input signal

Control: 3-point or modulating
BR225
BR240S
BR240E



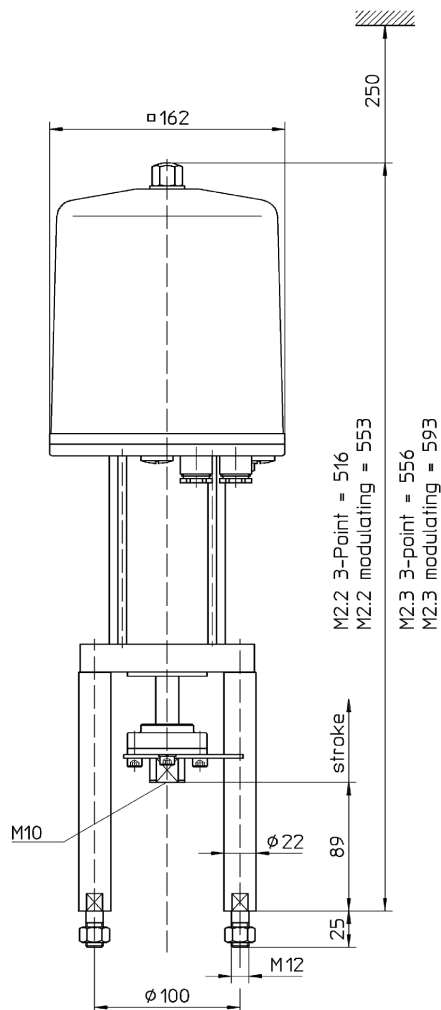
M2.2(Y)
M2.3(Y)

Operating mode:	S1-100% ED c/h 1200	EN 60034-1
End position switch-off:	travel dependent	
Ambient temperature:	0...+50°C	
Weight:	M2.2(Y)	9 kg
	M2.3(Y)	10 kg

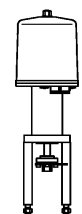
Actuator variant and accessories

- Potentiometer: 0.2 / 1.0 / 10.0 kOhm 1,5 VA
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: max. 10 A / max. 250 VAC
- Voltage: 24 VAC

Drawing

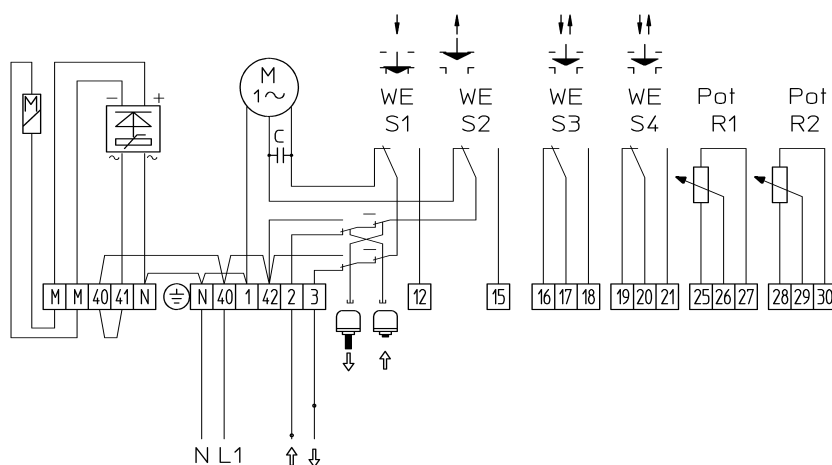


Control: 3-point or modulating
BR225
BR240S
BR240E

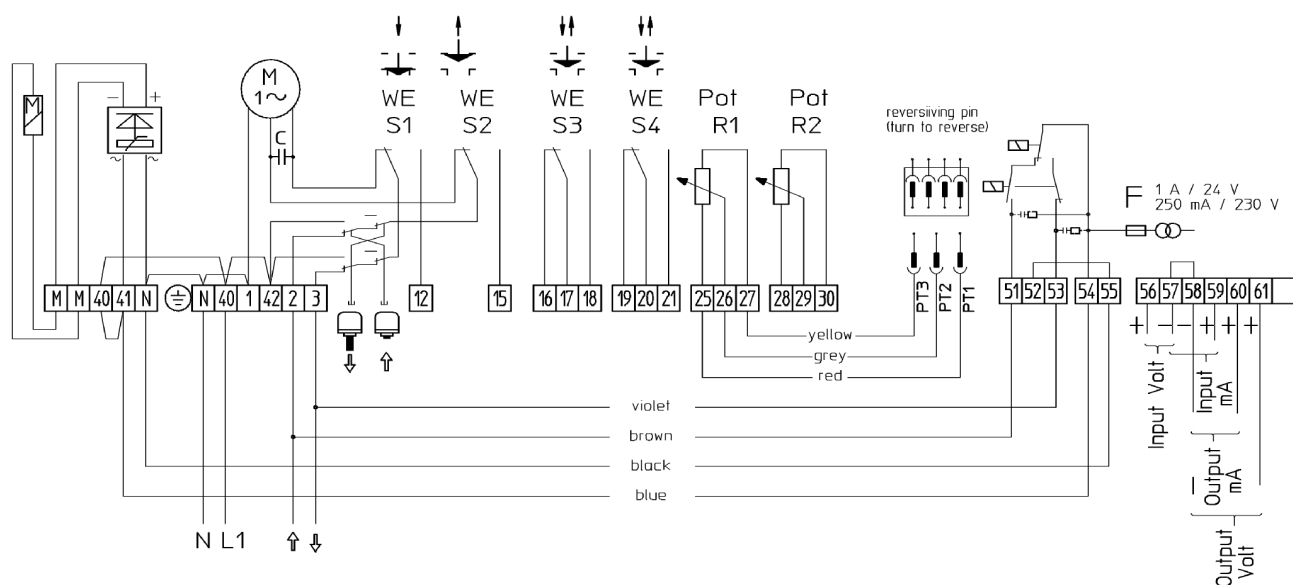


M2.2(Y)
M2.3(Y)

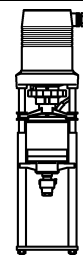
Circuit diagram M2.2 / M 2.3



Circuit diagram M2.2Y / M2.3Y



with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



MC103SE

Features

- Electric linear actuator with defined end position in case of power failure (actuator stem extended)
- Electro-mechanic safety function (spring reserve), hydraulically damped
- Microprocessor controlled with automatic calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Terminals for binary signal to move to a limit position (frost protection)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

Type		MC103SE/24	MC103SE/230
Actuating time ¹⁾	s/mm	6 · 4*	6 · 4*
Fail-safe time	s/mm	approx 0.1	approx 0.1
Actuating thrust	kN	1.0	1.0
Stroke	mm	max. 20	max. 20
Power supply	VAC	24 ±10%	230 +6% -10%
Frequency	Hz	50/60 ±5%	50/60 ±5%
Power consumption	VA	max. 25	max. 20
Input signal ²⁾		3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm	3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm	0...10 VDC max. 8 mA min. 1200 Ohm
Hysteresis ³⁾	V	0.05 · 0.15 · 0.3 · 0.5	0.05 · 0.15 · 0.3 · 0.5

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.05 mm

Operating mode: S3-50% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 5.0 kg

¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ Invertible input and output signal

³⁾ Freely adjustable

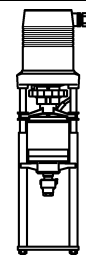
7.3.2 Phone +49 (0) 52 07 / 89 03 - 0
Fax +49 (0) 52 07 / 89 03 - 80
1/3 e-Mail b-a@hora.de
Internet www.hora-ba.com

Holter Regelarmaturen GmbH & Co. KG
Helleforthstraße 58-60
33758 Schloß Holte-Stukenbrock
Germany



Excellence is our standard

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E

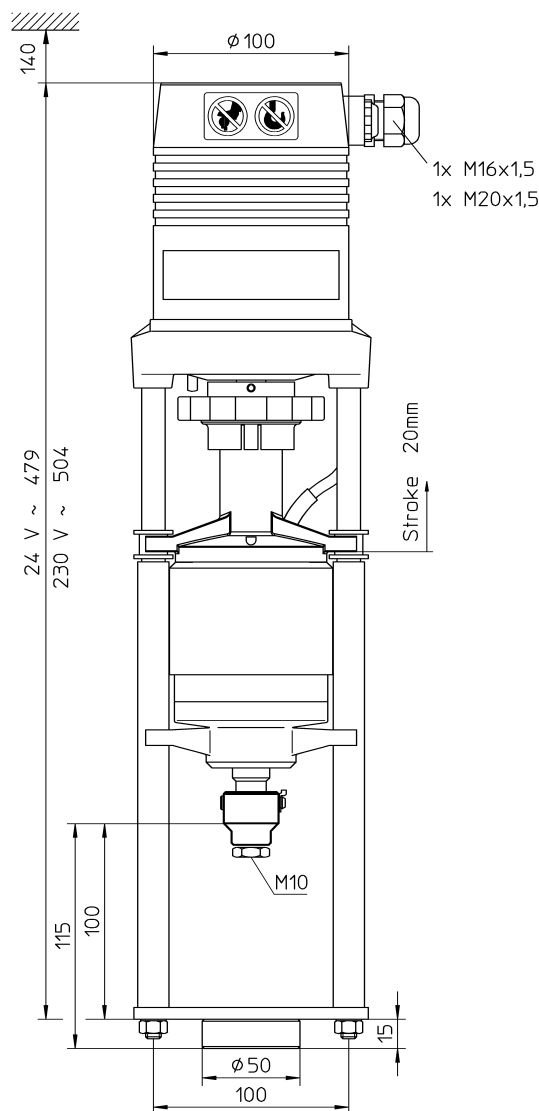


MC103SE

Actuator variant and accessories

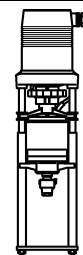
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



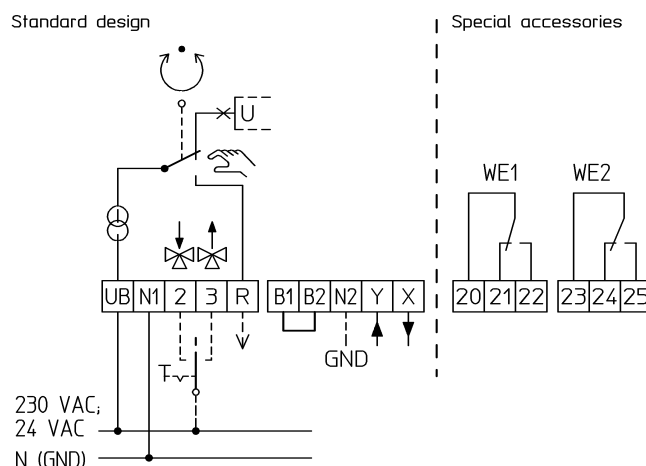
¹⁾ Position switch unit and output signal not in combination

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



MC103SE

Circuit diagram



R Feedback signal in „Manual“ mode of operation

R=24 VAC max. 100 mA for actuators in 24 VAC design

R=24 VDC max. 35 mA for actuators in 230 VAC design, resistance of load > 480 Ohm

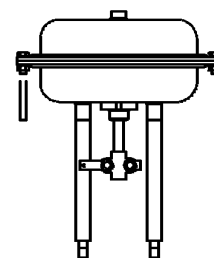
N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be used by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

B1/B2 Connection of a binary signal (e.g. frost protection)

for two-way and three-way valves

BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



PA-N160
PA-N300
PA-N540
PA-N1080
PA-N2160

Features

- Actuators with high thrust and short actuation time
- Comply with requirements for explosion proof areas
- Mode of operation: spring opens / air closes or opens
- Mechanical position indication

Technical data actuator

Type		PA-N160	PA-N300		PA-N540			PA-N1080			PA-N2160		
Diaphragm area	cm ²	160	300		540			1080			2160		
Operating pressure, max.	bar	6	6		6			6			6		
Spring range	bar	1.8 – 3.0	1.6-2.4	1.6-2.8	1.7-2.7	1.7-3.3	1.7-3.7	1.5-2.4	1.5-2.7	1.5-3.0	1.5-2.4	1.5-2.7	1.5-3.0
Spring force	kN	2.8	5	5	9	9	9	16	16	16	32	32	32
Stroke	mm	20	20	30	30	50	60	60	80	100	60	80	100
Volume	ltr.	0.5	1.0	1.3	3.7	4.8	5.3	9.9	12.5	14.2	19.8	25.4	28.5
Stroke volume	ltr.	0.3	0.6	0.8	2.2	3.2	3.8	6.5	8.7	10.8	12.9	17.4	21.6
Air connection		NPT ¼	NPT ¼		NPT ½			NPT ¾			NPT ¾		
Weight without handwheel	kg	6	13		43			120			202		
Weight with handwheel	kg	9	16		62			144			235		

Ambient temperature: -40...+80°C

Operating mode: alternatively spring closes / opens

Actuator variant and accessories

- Manual operating device
- Positioner
 - pneumatic with manometer Type EIP 300
 - pneumatic without manometer Type 2750
 - electro-pneumatic without manometer Type 2750E
 - electro-pneumatic with manometer Type SIPART-PS 2
 - electro-pneumatic with manometer Type SIPART-PS 2-Ex
 - electro-pneumatic with manometer Type SIPART-PS 2
 - electro-pneumatic with manometer Type SIPART-PS 2-Ex
 - electro-pneumatic with manometer Type EAW 3000
 - electro-pneumatic with manometer Type EAW 4000
 - electro-pneumatic G ¼ Type EIL 201 F02
 - electro-pneumatic G ¼ Type EIL 100 F02
 - electro-pneumatic G ⅜ Type EIL 100 F03
 - electro-pneumatic G ¼ or G ½
- Air filter, G ¼
- Air filter, G ½
- Blocking valve
- Booster
- Solenoid valve
 - 3/2 Way, 230 VAC, 50 Hz
 - Solenoid valve
 - G ¼ Type 6014
 - 3/2 Way, 230 VAC or 24 VDC, 50 Hz
 - Quick venting screw
 - Throttle
 - G ½ Type 4050306
 - G ¼ Type ID 106123
 - G ½ Type ID 106124
- Limit switches
 - Type 3 SE 2120-1E 1 or 2 pieces

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Internet www.hora-ba.com

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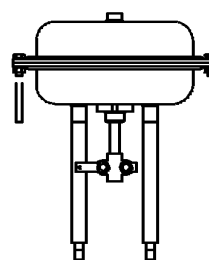
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

BR240S • BR340S

BR240E • BR340E



PA-N160

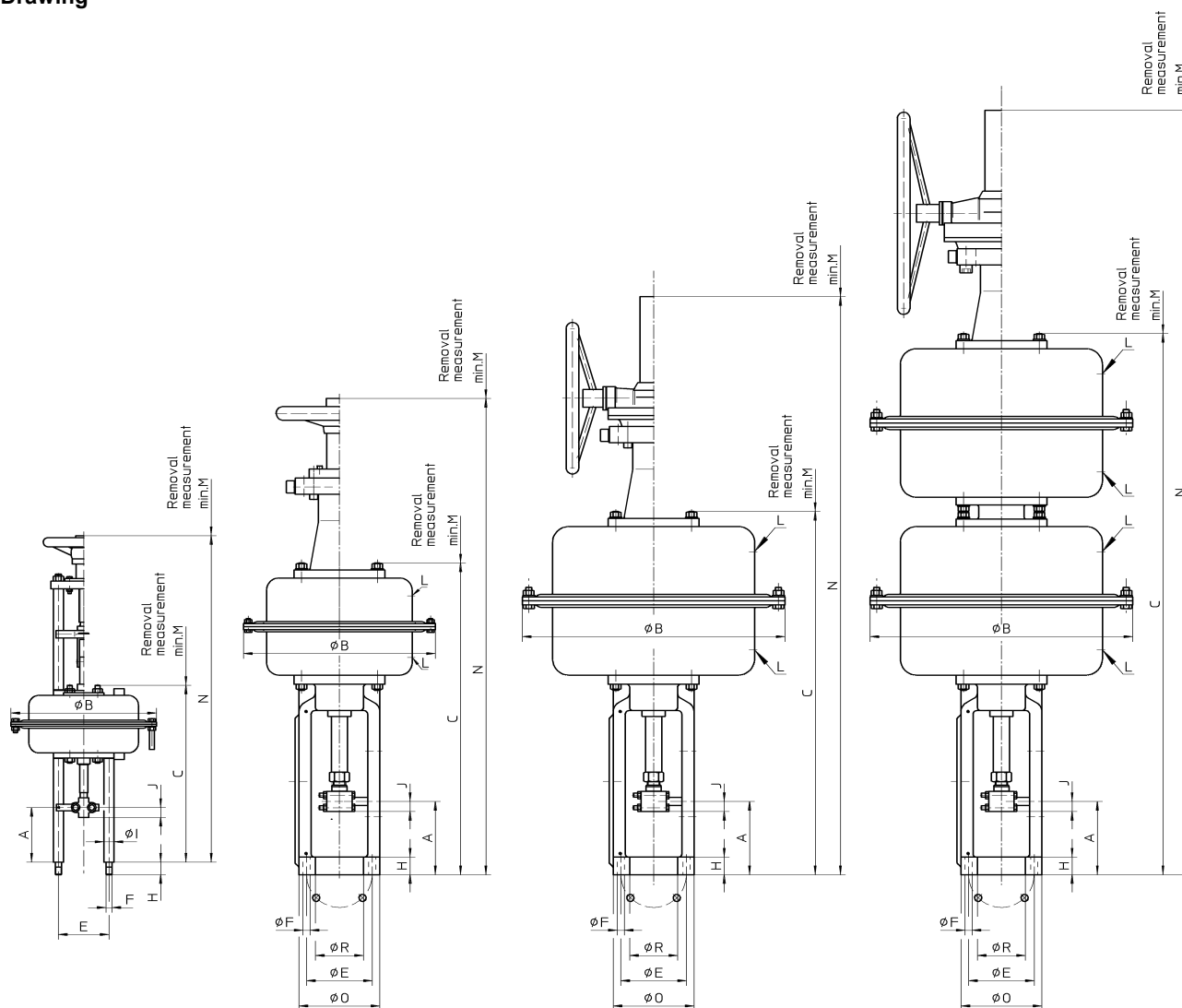
PA-N300

PA-N540

PA-N1080

PA-N2160

Drawing



PA-N160
PA-N300

PA-N540

PA-N1080

PA-N2160

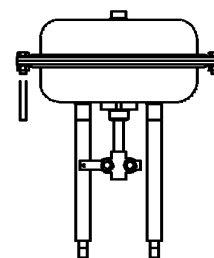
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

BR240S • BR340S

BR240E • BR340E



PA-N160

PA-N300

PA-N540

PA-N1080

PA-N2160

Dimension

Type	Working function	A ¹⁾ mm	B mm	C mm	E mm	F	H mm	J mm	K	L	M mm	N mm	O mm	R mm
PA-N160	Spring close	107	202	291	100	M12	25	19.5	M10	NPT ¼	600	573	130	38
	Spring open	127										654		
PA-N300	Spring close	107	284	345										
	Spring open	137												
PA-N540	Spring close	145	380	617	130	14	35	20	14.5 20.5 30	NPT ½	600	948	160	95
	Spring open	205												
PA-N1080	Spring close	145	520	719	130	14	35	20	14.5 20.5 30	NPT ¾	600	1144	160	95
	Spring open	245												
PA-N2160	Spring close	145	520	1071	130	14	35	20	14.5 20.5 30	NPT ¾	600	1513	160	95
	Spring open	245												

I = 20 mm (only PA-N160 and PA-N300)

¹⁾ At spring range beginning

²⁾ min. allowable spindle connection at actuator pressure 6 bar

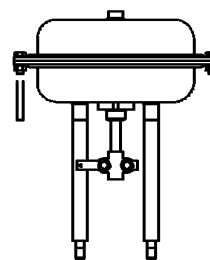
for two-way and three-way valves

BR216 • BR316

BR225 • BR325

BR240S • BR340S

BR240E • BR340E



PA-N160

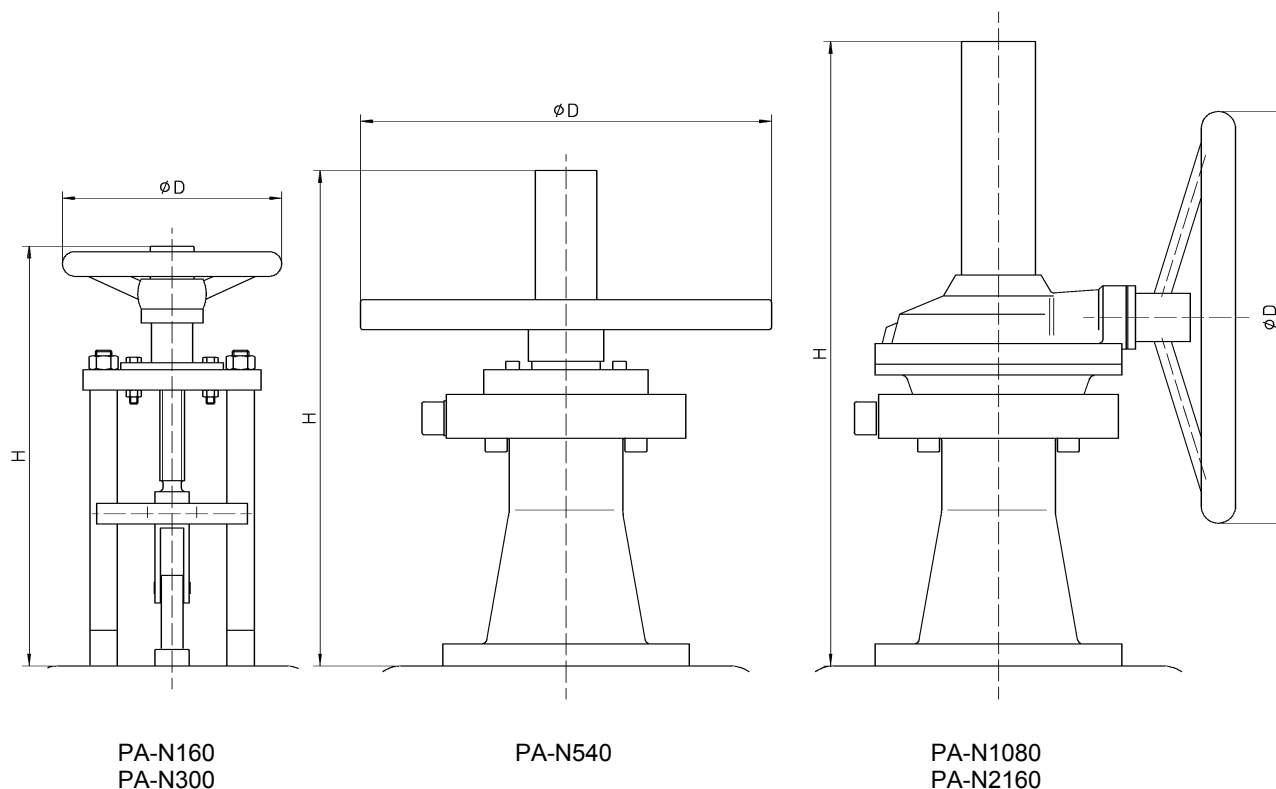
PA-N300

PA-N540

PA-N1080

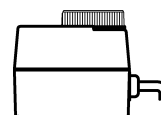
PA-N2160

Manual operation



Type		PA-N160	PA-N300		PA-N540		PA-N1080		PA-N2160	
Stroke	mm	20	20	30	30	50	60	80	60	80
H	mm	315	315		361		450		450	
D	mm	175	175		300		400		500	
Weight handwheel	kg	3	3		19		24		33	

for threaded mixing valves
BRGMMD • BRGMMV



MC106Y

Features

- Microprocessor controlled with automatic self-calibration on start up
- Wear-free distance measuring system - no potentiometer
- Wire break recognition in 2...10 VDC operation
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Specially designed linkages for fitting to other manufacturer's products
- Manual override
- Change over from manual to automatic mode
- Suitable for use as a sub-assembly with isolating jacket
- Rotation direction indication

Technical data

Type		MC106Y
Actuating time at 50 Hz/90° ¹⁾	s	150 · 80*
Nominal torque	Nm	6
Power supply	VAC	24 ±10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	3,0
Input signal ²⁾		0(2)...10 VDC 77 kOhm
Output signal ²⁾		0...10 VDC max. 8 mA min. 1200 Ohm

Enclosure protection: IP 43

Operating mode: S4-50% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

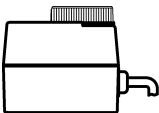
Weight: 0.35 kg

Actuator with 1.5 m cable (flexible), four wire (0.7 mm²) with wire end ferrule

¹⁾ Actuating time freely adjustable, presetting is marked with *

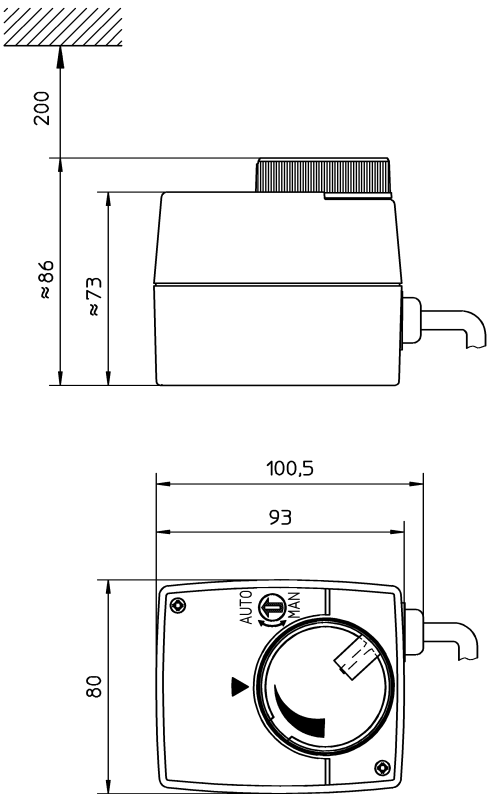
²⁾ Invertible input and output signal

for threaded mixing valves
BRGMMD • BRGMMV

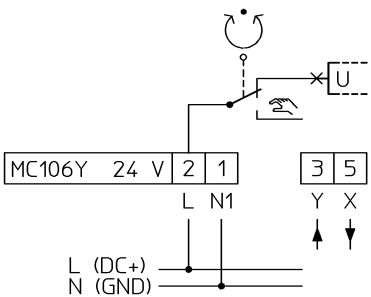


MC106Y

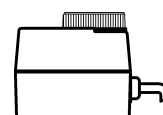
Drawing



Circuit diagram



for threaded mixing valves
BRGMMD • BRGMMV



M106

Features

- Specially designed linkages for fitting to other manufacturer's products
- Manual override
- Change over from manual to automatic mode
- Suitable for use as a sub-assembly with isolating jacket
- Rotation direction indication

Technical data

Type		M106
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	6
Power supply	VAC	230 +6% -10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	3.5
Input signal		3-point

Enclosure protection: IP 43

Operating mode: S4-50% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

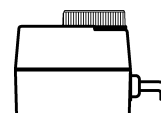
Weight: 0.35 kg

Actuator with 1,5 m cable (flexible), three wire (0.7 mm²) with wire end ferrule

Actuator variant and accessories

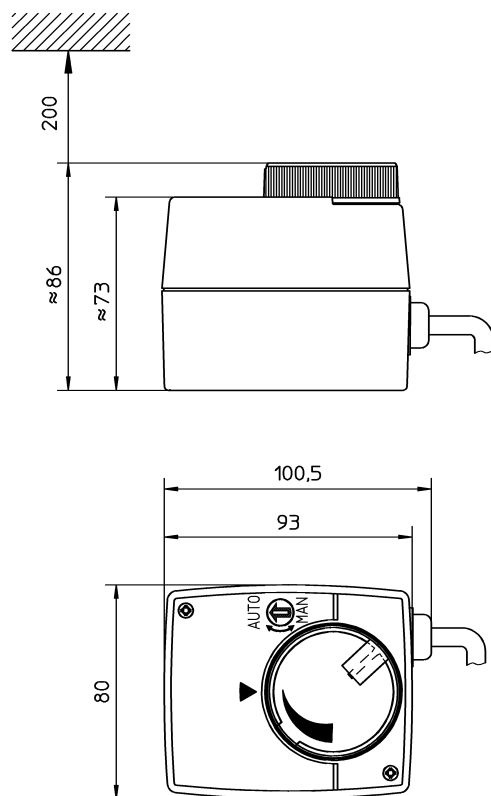
- Voltage 24 VAC

for threaded mixing valves
BRGMMD • BRGMMV

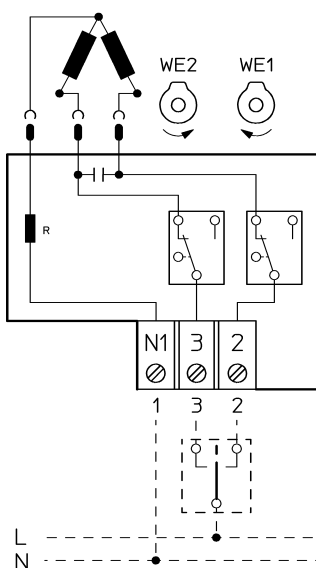


M106

Drawing



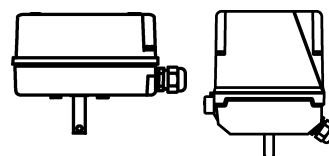
Circuit diagram



for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

for threaded mixing valves
BRGMMD/BRGMMV



M125

M135
M140
M150
M180

Features M125

- Specially designed linkages for fitting to other manufacturer's products
- Manual override on adapter
- Gear disengagement feature
- Rotation direction indication
- Cable inlet with traction relief

Technical data M125

Type		M125
Actuating time at 50 Hz /90°	s	130
Nominal torque	Nm	25
Power supply	VAC	230 +6% -10%
Frequency	Hz	50/60 ±5%
Power consumption	VA	6.5
Input signal		3-point

Enclosure protection: IP 43

Operating mode: S1-100% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

Weight: 1.2 kg

Actuator variant and accessories M125

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA

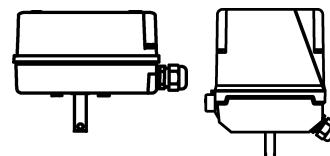
Electric quarter-turn actuators

25 - 80 Nm **8.2.2**

for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

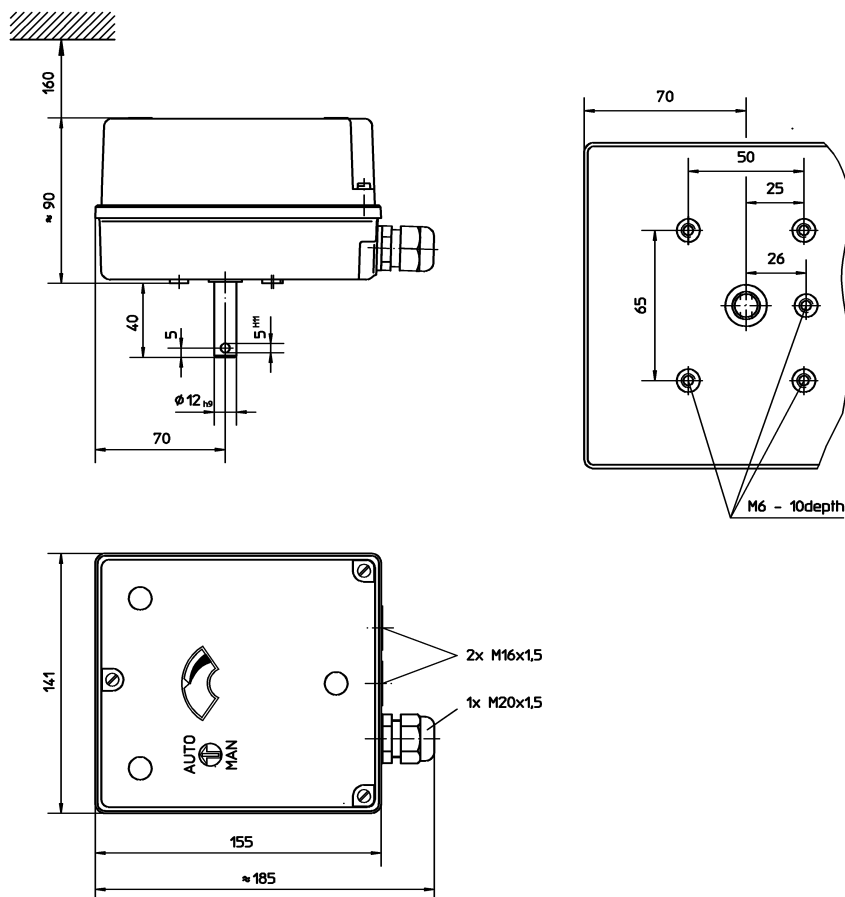
for threaded mixing valves
BRGMMD/BRGMMV



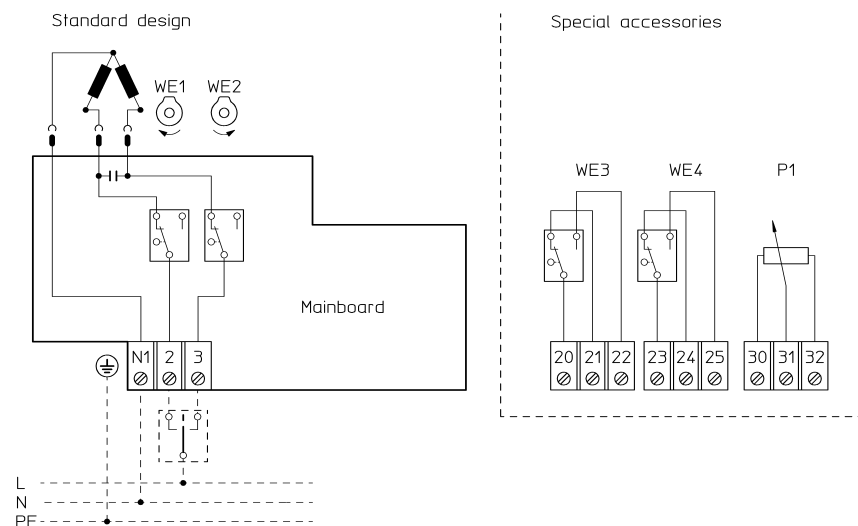
M125

**M135
M140
M150
M180**

Drawing M125



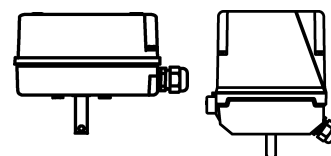
Circuit diagram M125



for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

for threaded mixing valves
BRGMMD/BRGMMV



M125

M135
M140
M150
M180

Features M135 – M180

- Specially designed linkages for fitting to other manufacturer's products
- Manual override on adapter
- Gear disengagement feature
- Rotation direction indication
- Cable inlet with traction relief

Technical data M135 – M180

Type		M135		M140
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70	10
Nominal torque	Nm	35	15	50
Power supply	VAC	230 +6% -10%		230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%		50/60 ±5%
Power consumption	VA	9		55
Input signal		3-point		3-point

Type		M150		M180	
Actuating time at 50 Hz /90° ¹⁾	s	I=130	II=70	I=130	II=70
Nominal torque	Nm	50	40	80	80
Power supply	VAC	230 +6% -10%		230 +6% -10%	
Frequency	Hz	50/60 ±5%		50/60 ±5%	
Power consumption	VA	12		26	
Input signal		3-point		3-point	

Enclosure protection: IP 54

Operating mode: M135/M150 S1-100% ED c/h 1200 EN 60034-1
M140 S3-50% ED c/h 1200 EN 60034-1
M180 S3-60% ED c/h 1200 EN 60034-1

End position switch-off: position dependent adjustable

Ambient temperature: 0...+50°C

Weight: M135/M150 2.5 kg
M140/M180 3.0 kg

¹⁾ Please state when ordering

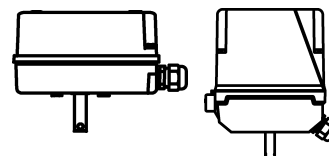
Electric quarter-turn actuators

25 - 80 Nm **8.2.2**

for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

for threaded mixing valves
BRGMMD/BRGMMV



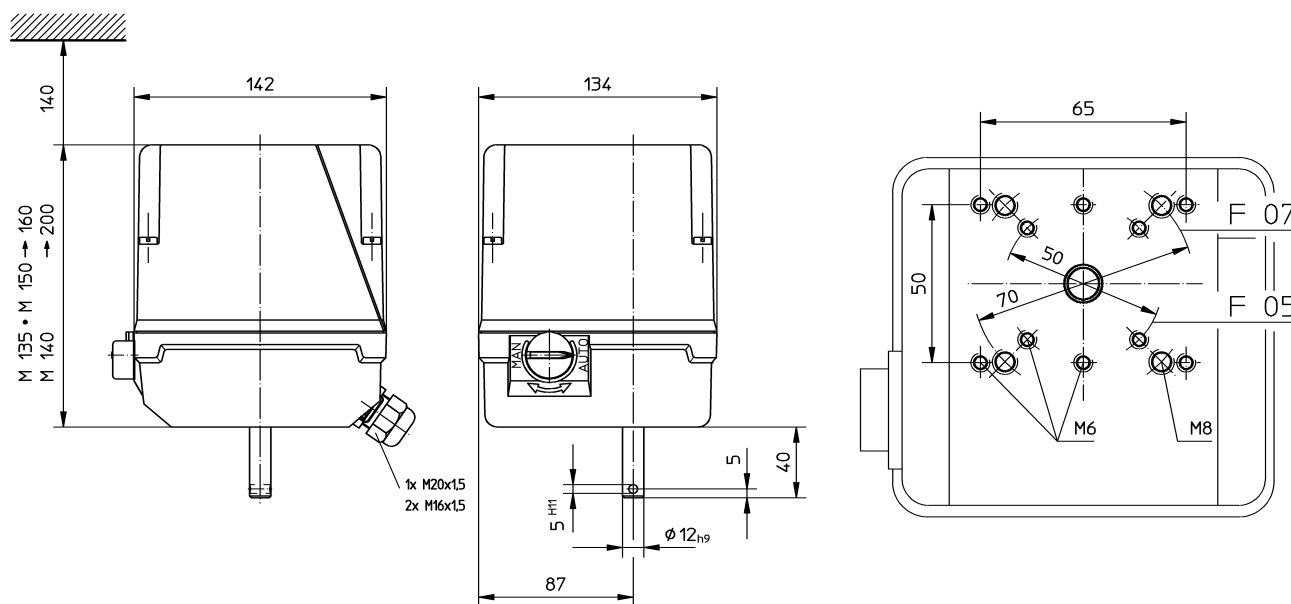
M125

M135
M140
M150
M180

Actuator variant and accessories M135 – M180

- Voltage: 24 VAC
- Position switch unit: 2 switches (WE3/WE4), potential free, infinitely adjustable
Rated load: max. 10 A / 250 VAC
- Potentiometer: with attachment
0.2 / 1 / 10 kOhm 1.5 VA
- Enclosure protection: IP 65
- Heater: -20°C ... +50°C 25 VA
24, 115, 230 VAC 50/60 Hz

Drawing M135/M140/M150



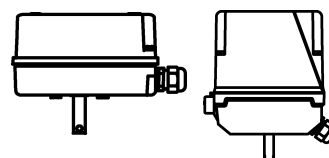
Electric quarter-turn actuators

25 - 80 Nm **8.2.2**

for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

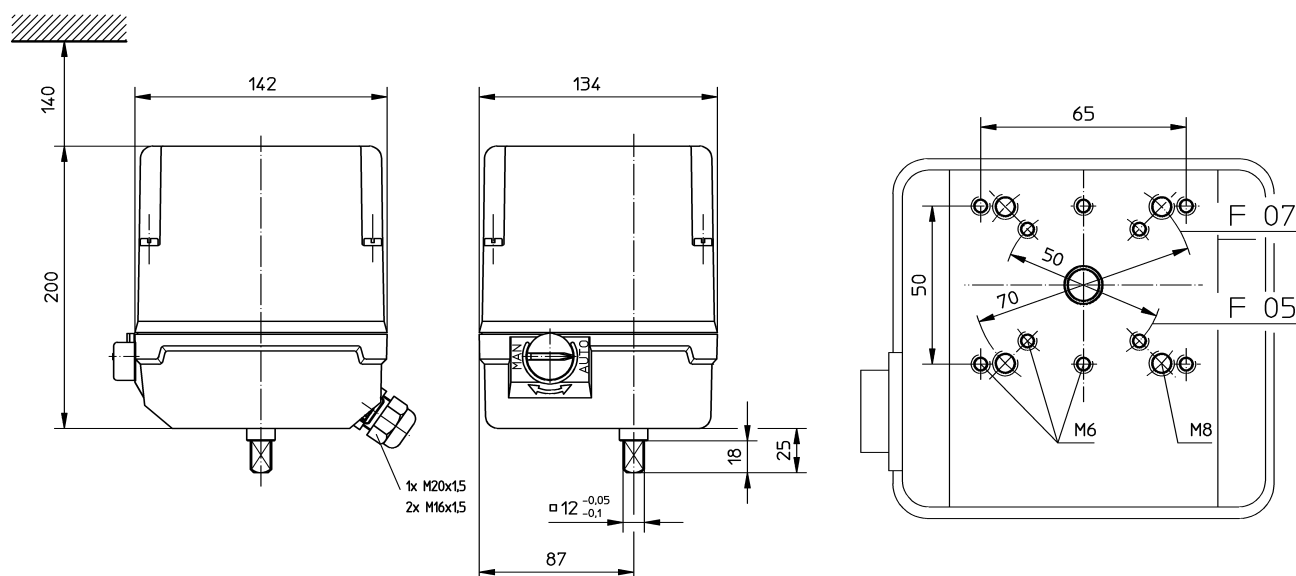
for threaded mixing valves
BRGMMD/BRGMMV



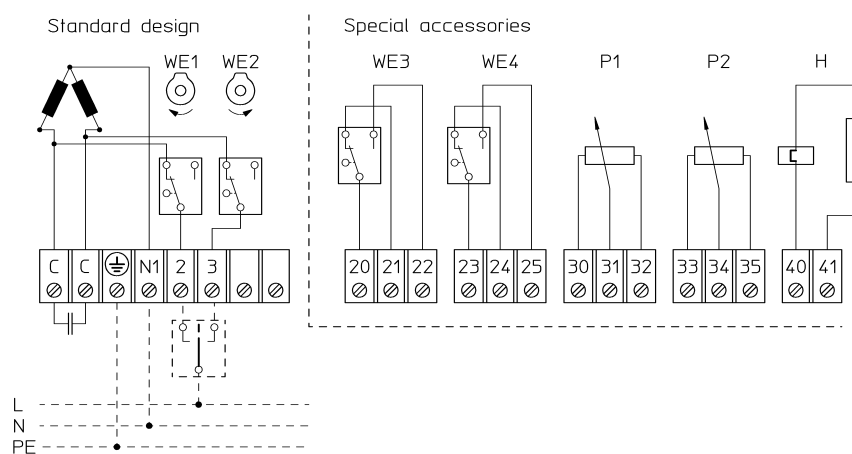
M125

M135
M140
M150
M180

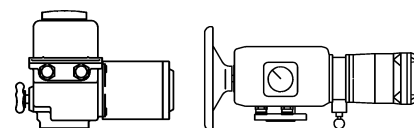
Drawing M180



Circuit diagram M135/M140/M150/M180



for control shut-off butterfly valves
BR16ZF A • BR16ZF R



OA6
OA8
OAP8

AS18
ASP25
AS50

Features

- Electric quarter-turn actuator suitable for mounting on valves with a turn of 90°
- Temperature controller in motor winding
- Manual override by hand wheel
- Rotation direction indication

Technical data

Actuators for shut-off butterfly valves BR16ZF A:

Type		OA6	OA8
Actuating time at 50 Hz /90°	s	6	6
Nominal torque	Nm	63	80
Power supply	VAC	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,03	0,06
Nominal current	A	0,6	1,2

Type		AS18	ASP25	AS50
Actuating time at 50 Hz /90°	s	6	30	30
Nominal torque	Nm	180	250	500
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,2	0,03	0,06
Nominal current	A	2,5	0,6	1,2

Actuators for control valves BR16ZF R:

Type		OAP8	ASP25	AS50
Actuating time at 50 Hz /90°	s	30	60	60
Nominal torque	Nm	80	250	500
Power supply	VAC	230 +6% -10%	230 +6% -10%	230 +6% -10%
Frequency ¹⁾	Hz	50 or 60 ±5%	50 or 60 ±5%	50 or 60 ±5%
Nominal output	KW	0,03	0,03	0,06
Nominal current	A	0,6	0,6	1,2

Enclosure protection: IP 67

Operating mode: for shut-off butterfly valves:

OA6/OA8/AS18/ASP25: S4-30% ED c/h 300 EN 60034-1
AS50: S4-50% ED c/h 1200 EN 60034-1

for control valves:

OAP8/ASP25/AS50 S4-50% ED c/h 1200 EN 60034-1

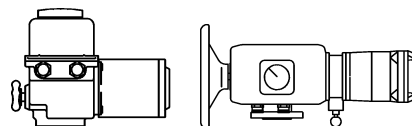
¹⁾ Please state when ordering

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for control shut-off butterfly valves
BR16ZF A • BR16ZF R



OA6
OA8
OAP8

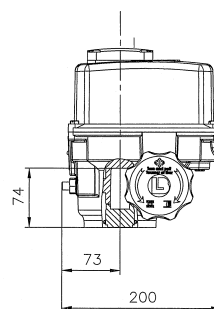
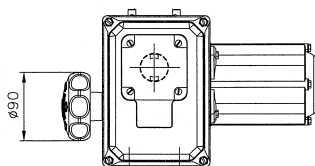
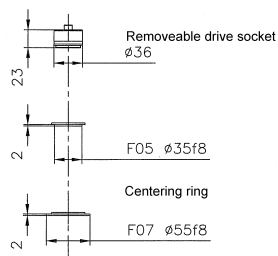
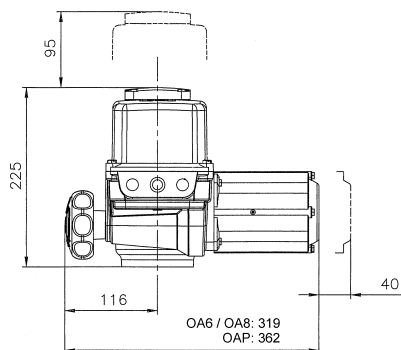
AS18
ASP25
AS50

End position switch-off:	OA6/OA8/OAP8:	In each end position 1 position switch is mechanically limited to 90°
	AS18/ASP25/AS50:	In each end position 1 position switch and 1 torque switch is mechanically limited to 90°
Ambient temperature:	0...+50°C	
Weight:	OA6:	6 kg
	OA8/OAP8:	7 kg
	AS18:	16 kg
	ASP25:	18 kg
	AS50:	17 kg

Actuator variant and accessories

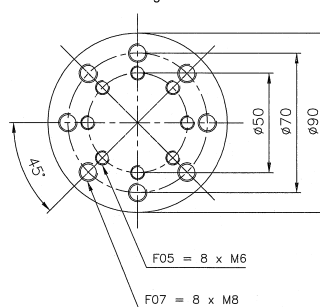
- Voltage/Frequency 3 ~ 400 VAC
- Tropic version
- Low temperature version -45°C...+50°C / 5 VA / 230 VAC
- Position switch unit max. 2 pieces (WE3/WE4)
Rated load: max. 10 A / 250 VAC
- Potentiometer 0.1 / 0.2 / 1 kOhm 1.0 VA
- Heater -20°C...+50°C / 5 VA / 230 VAC

Drawing OA6 / OA8 / OAP8



ISO 5211
F05/F07

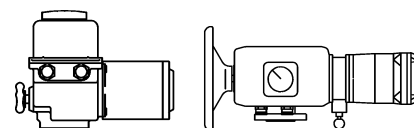
A: Flange view



Electric quarter-turn actuators

63 - 500 Nm **8.2.3**

for control shut-off butterfly valves
BR16ZFA • BR16ZFR

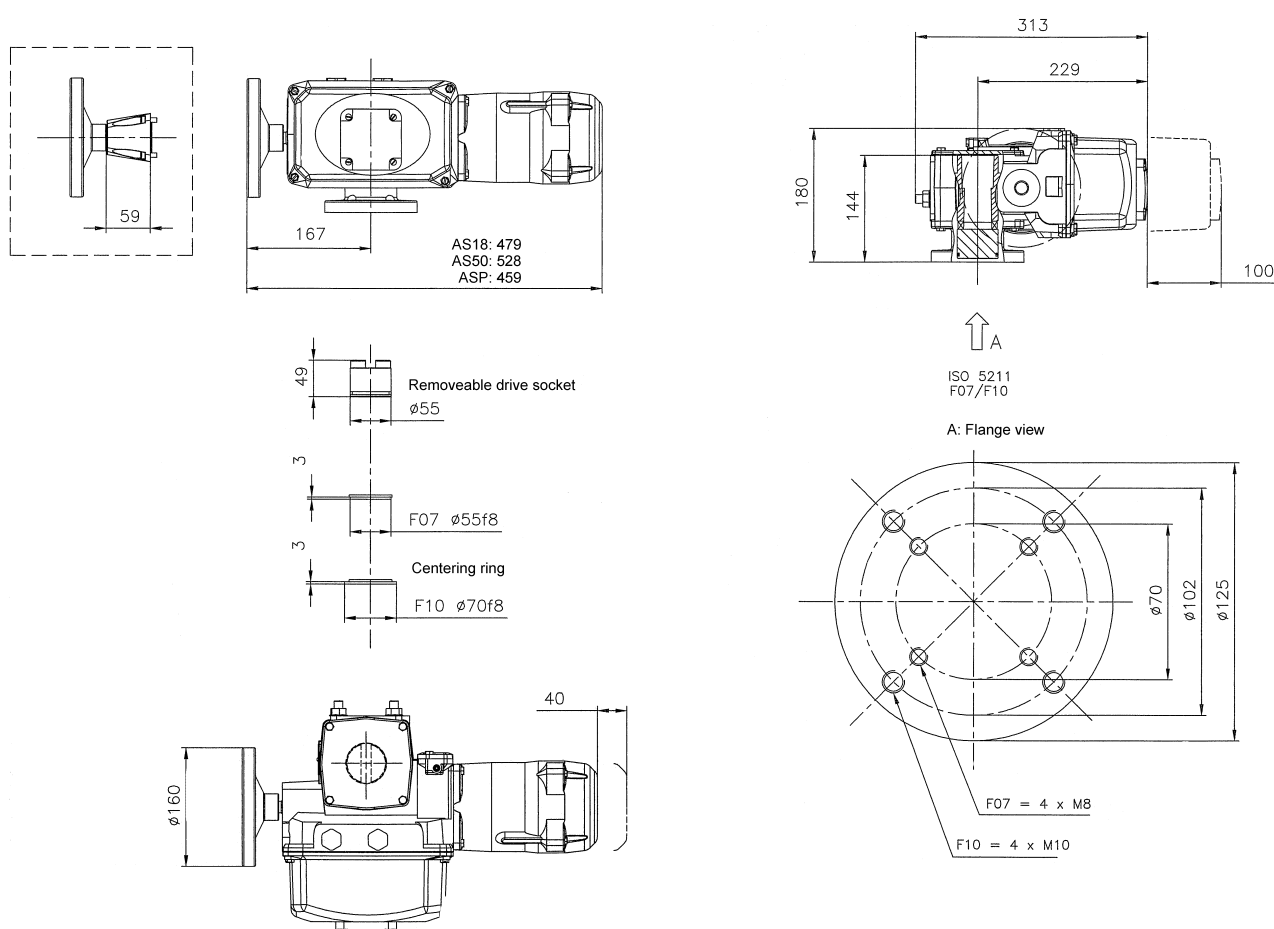


OA6
OA8
OAP8

AS18
ASP25
AS50

Type		OA6 / OAP8	OA8
ISO 5211		F05 F07	F07
s	mm	11 (DN 50 – DN 100) 17 (DN 125)	17

Drawing AS18 / ASP25 / AS50

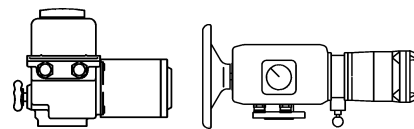


Type		AS18	ASP25	AS50
ISO 5211		F07	F07 F10	F10
s	mm	17	17 (DN 150 – DN 200) 22 (DN 250)	22

Electric quarter-turn actuators

63 - 500 Nm **8.2.3**

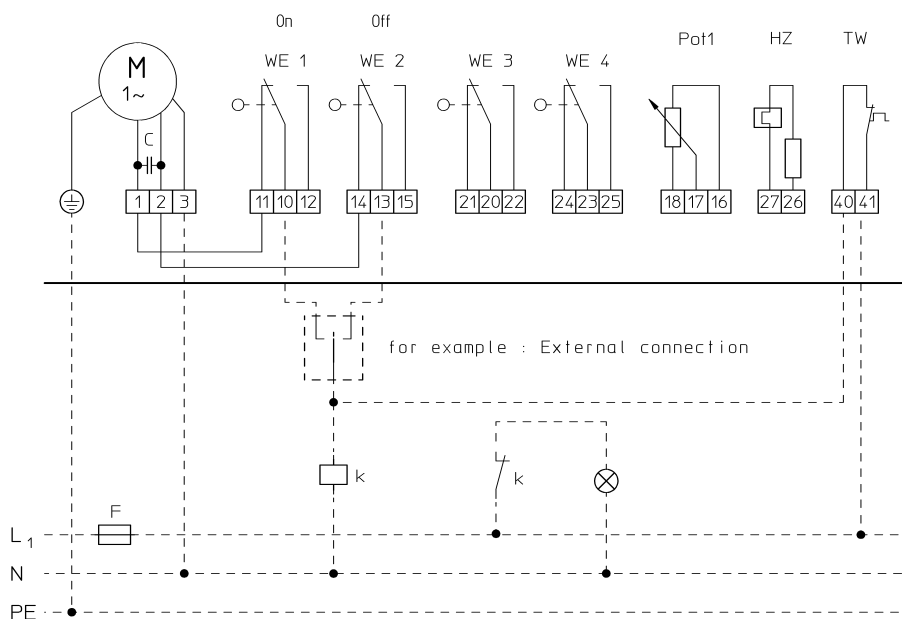
for control shut-off butterfly valves
BR16ZF A • BR16ZF R



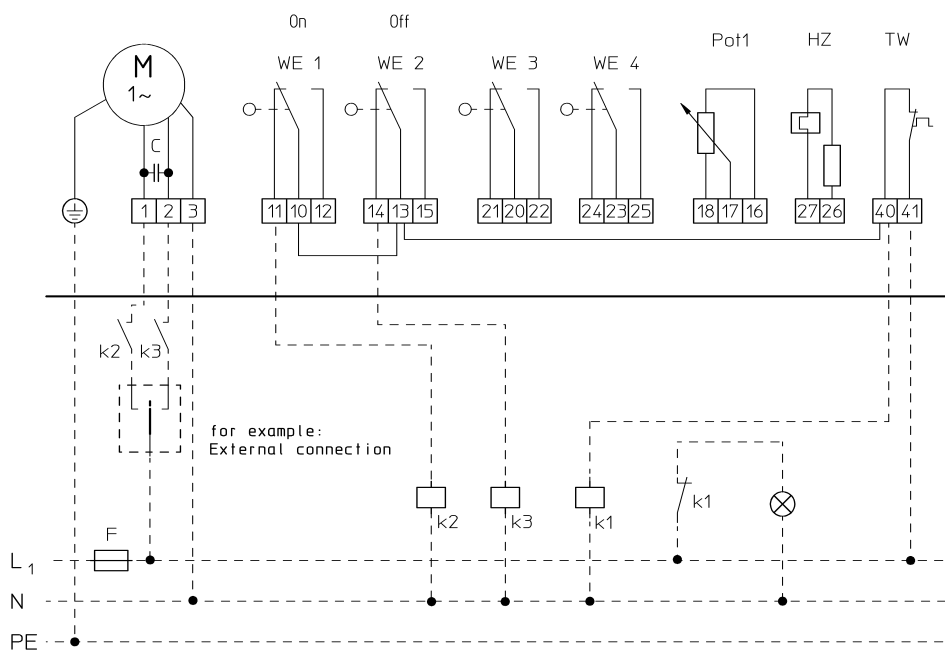
OA6
OA8
OAP8

AS18
ASP25
AS50

Circuit diagram OA6 / OAP8



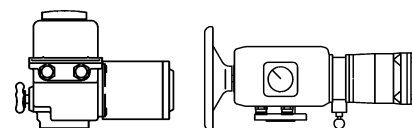
Circuit diagram OA8



Electric quarter-turn actuators

63 - 500 Nm **8.2.3**

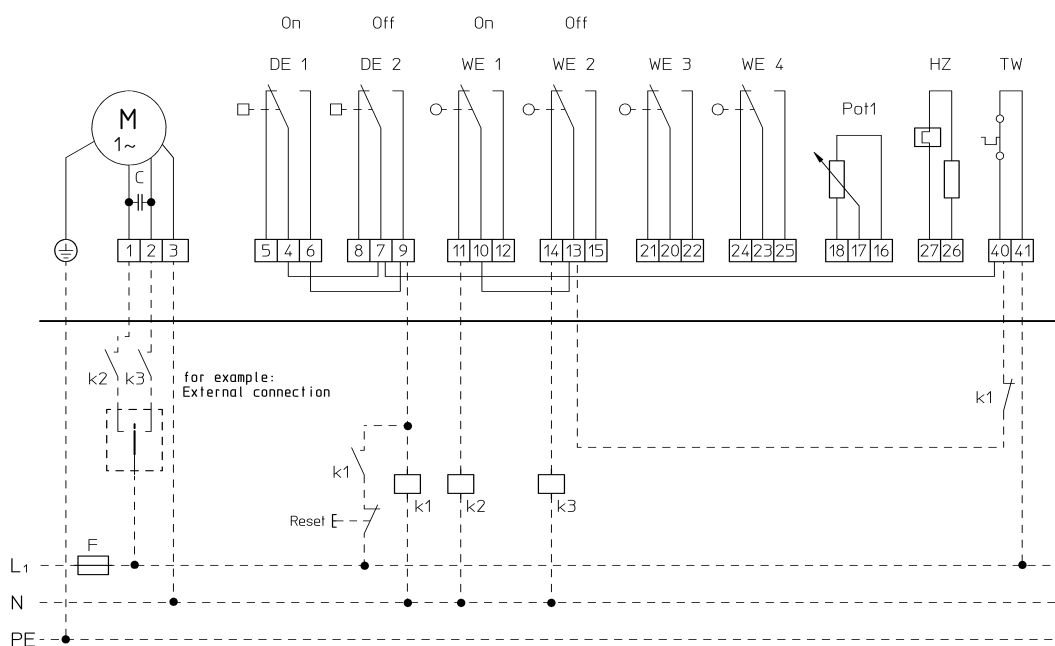
for control shut-off butterfly valves
BR16ZF A • BR16ZF R



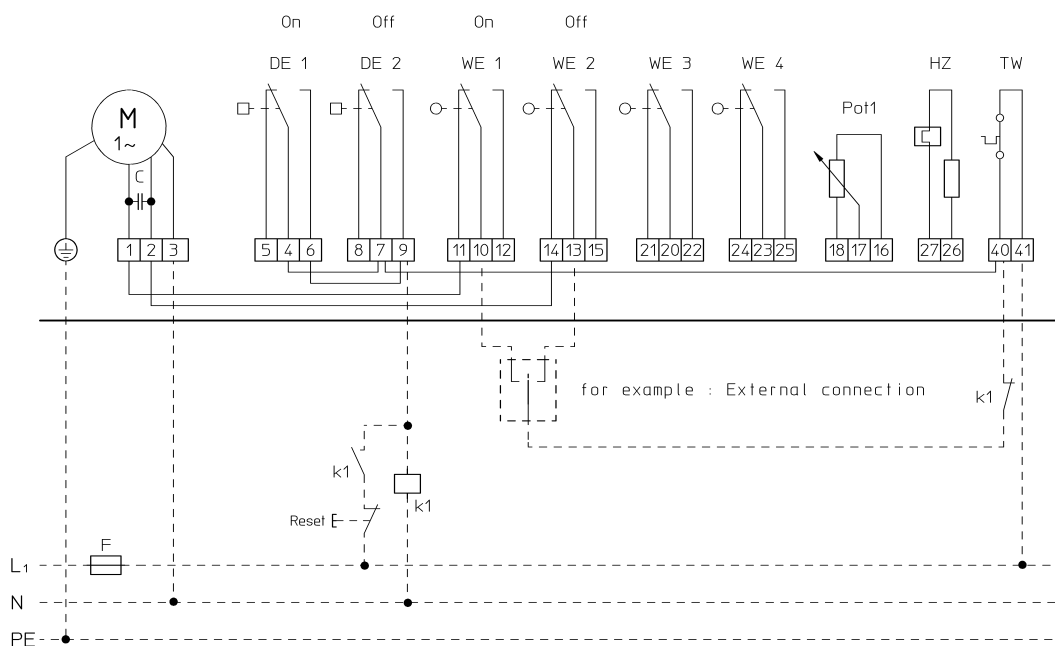
OA6
OA8
OAP8

AS18
ASP25
AS50

Circuit diagram AS18 / AS50



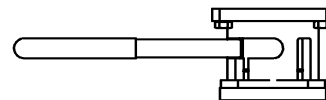
Circuit diagram ASP25



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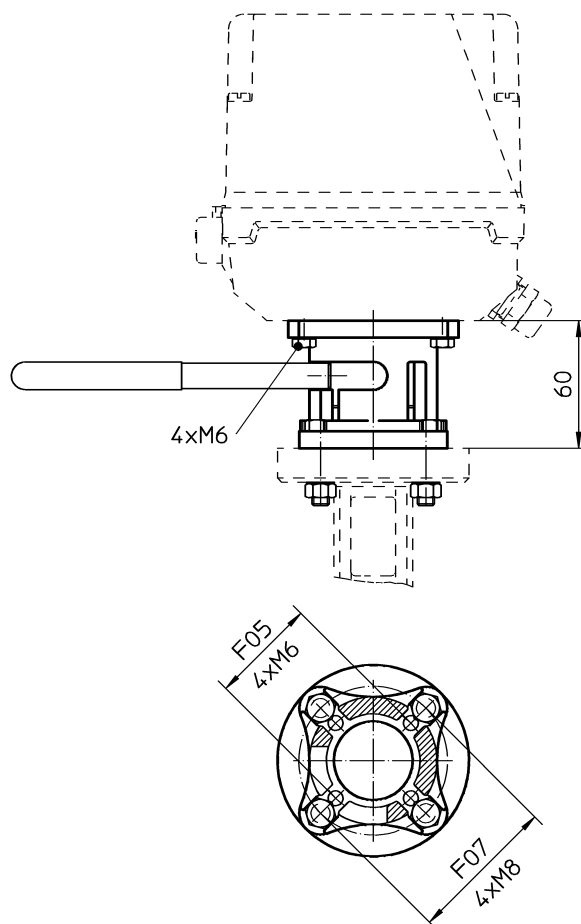
for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

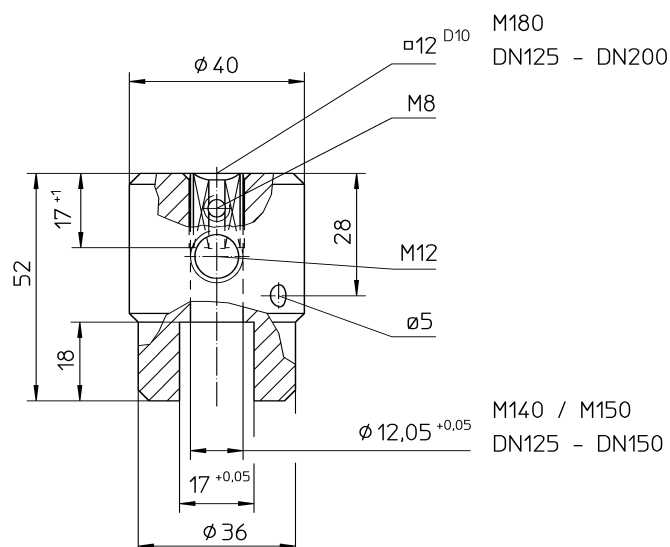


Attachment for control shut-off valves BR16ZF

Console



Clutch

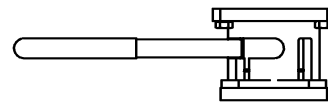


Attachments suitable for butterfly valves

9.1

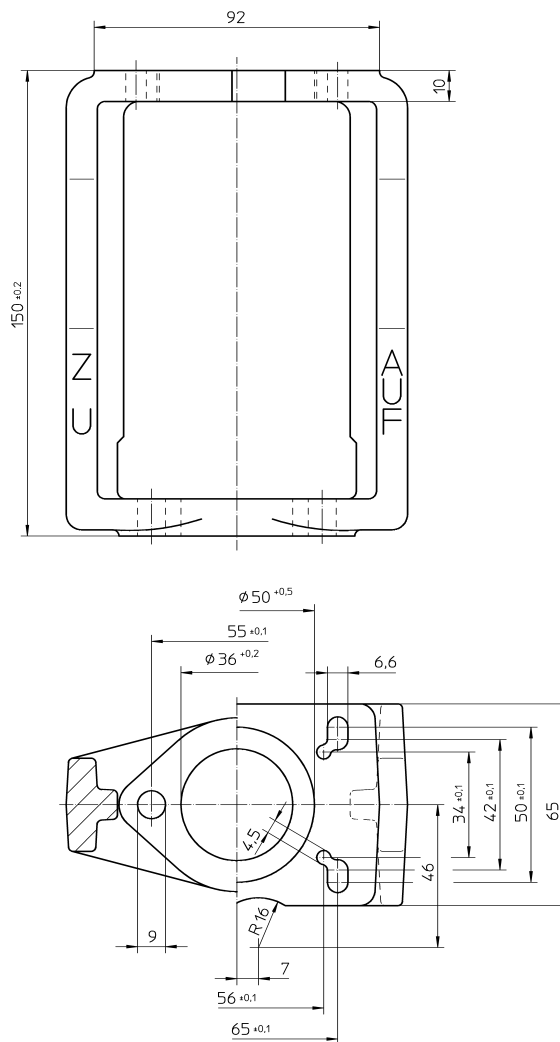
for control shut-off butterfly valves
BR16ZF

for butterfly valves
BRDR6/16
BRDRP6/16

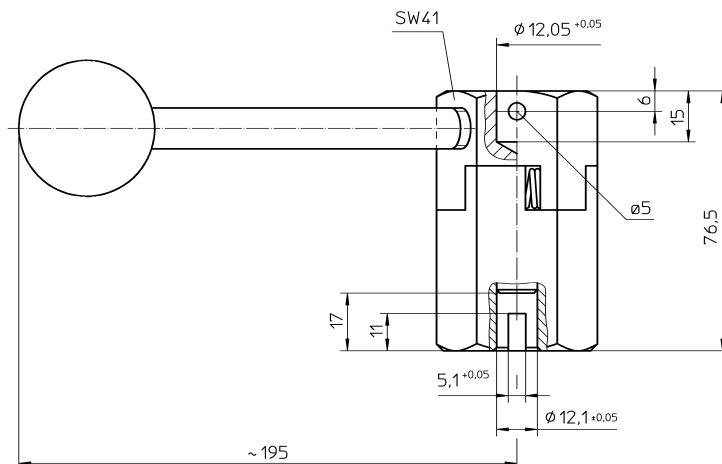


Attachment for butterfly valves BRDR6/16 and BRDRP6/16

Console
DN 25 – DN 150



Spring clutch
SW 41-2



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9.1
2/3

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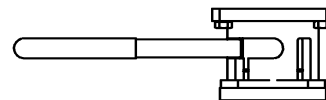
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Attachments suitable for butterfly valves

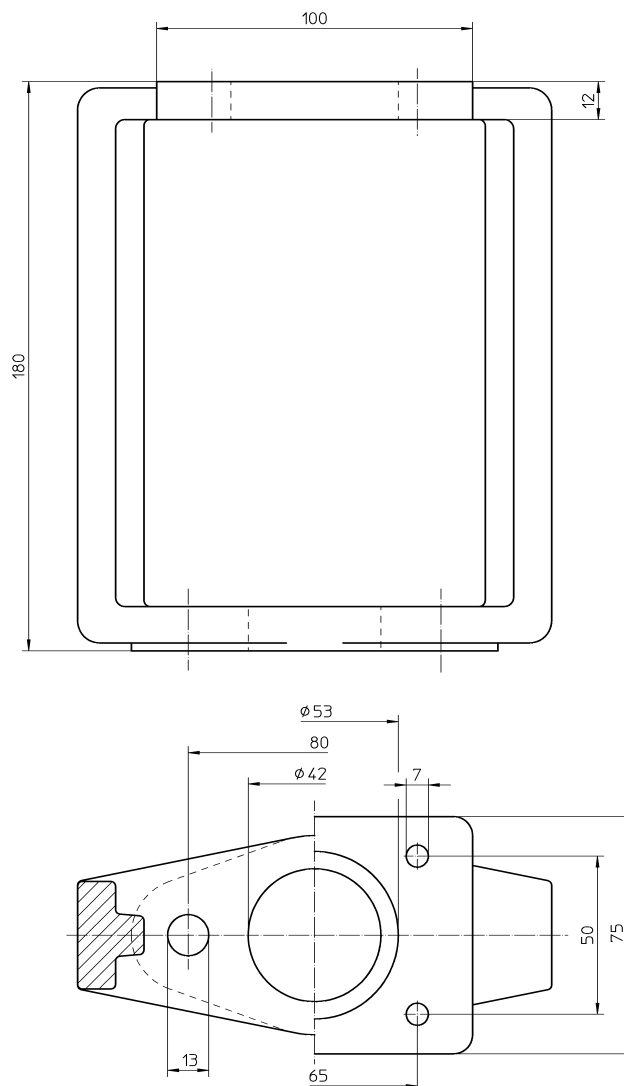
9.1

for control shut-off butterfly valves
BR16ZF

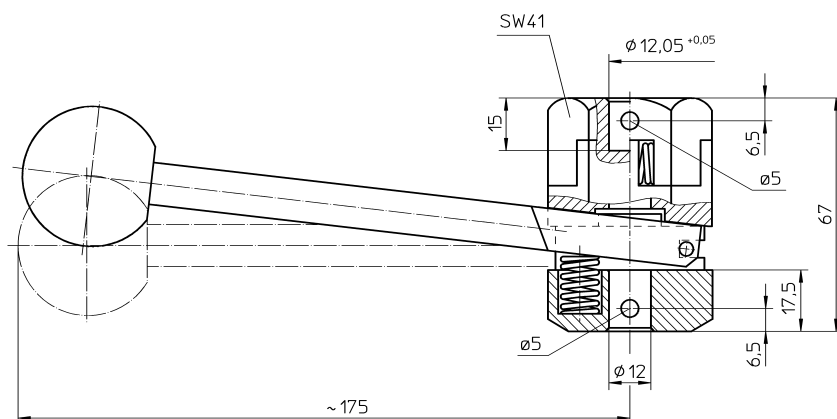
for butterfly valves
BRDR6/16
BRDRP6/16



Console DN 200



Spring clutch SW 41-3



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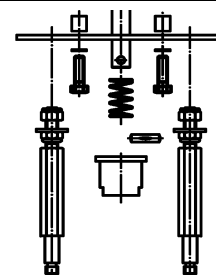
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Attachments suitable for mixing valves

9.2

for HORA-mixing valves
BRGMMD • BRGMMV

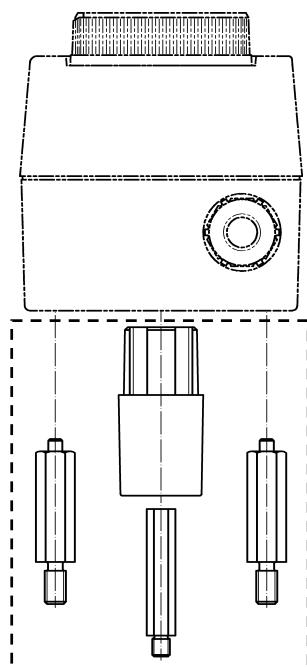
for fitting to other manufacturer's products



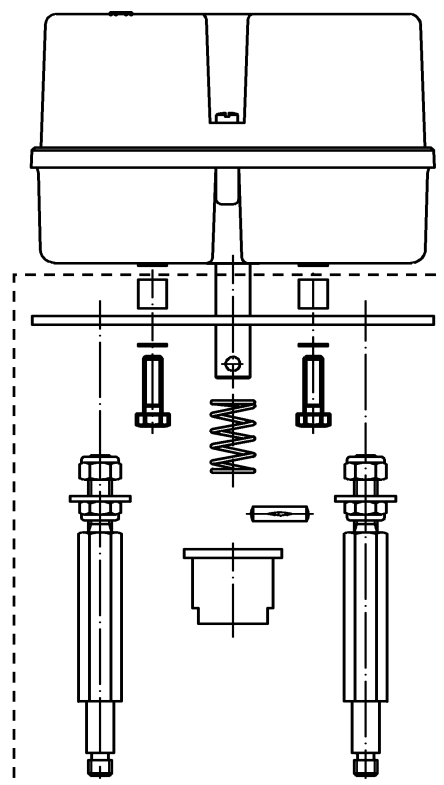
Attachment for mixing valves

Attachment-No.	Actuator	Type of mixing valve-article
62	MC106Y	ESBE three-way mixing valves H3MG / four-way mixing valves H4MG
		Elesta three-way mixing valves / four-way mixing valves
		Thermomix three-way mixing valves / four-way mixing valves
		Pommerening three-way mixing valves / four-way mixing valves
64	M106	Wita
		Meibes
		AEG / Kromschröder Minimix
65		Centra DRK and ZRK
68	M125	HORA (GMMD, GMMV)
69	MC106Y M106	HORA (GMMD, GMMV)

Attachment No. 62, No. 64, No. 65, No. 69



Attachment No. 68



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